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# Evaluation of state forest institutions in Romania based on the 3L Model

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## **Abstract**

Romanian forests account 27.5% of total area and has quite even shares of ownership, 48.5 % state forests and 51.5% private forests. From a total of ~7 million hectares, 3.2 million hectares are state forests managed by State forest administration, 3.8 mil. hectares are managed by private owners or territorial administrative units. This research focuses on the forest policy programs in the contemporaneous context by a performance assessment of the state forest institutions fulfillment of their policy goals. To this end, the 3L Model was using the criteria and indicators approach combined with empirical data from the field (interviews and questionnaires) and available documents, reports, laws etc. The results identify discrepancies between what is on paper and the reality regarding the implementation of forest policy goals, especially regarding cost efficiency of sustained forest stands, as the forests are sustainably managed but with high costs due to lack of forest road infrastructure. Moreover, the forest representation status is clearly challenged, more institutions aspire for the representation of interests in forest which leads to conflicts and bad decision-making. Whilst the state forest administration performance is average, the state authority performance in forestry is relatively low which implies that strengthening of law enforcement is a must in order to mitigate illegal activities in forests and secure property rights protection. A shift towards activating the state forest institutions should be performed by involving all actors in the forest sector and improve the forest policy context through shared representation of the speaker/mediator role.

Key words: Romanian forest policy, 3L Model, state forest institutions, management tasks, authority tasks, criteria and indicators, performance evaluation, forest policy.

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# **1. Introduction and related literature**

## **1.1 Introduction**

The evolution of ownership structure in Romania during the past 25 years brought significant changes into the forest sector such as reduced role of the state in forest administration, development of non-state forest administration as well as constant shifts in institutional and regulation framework (Abrudan et al., 2015)

Every stakeholder that has interests towards forests, has to respect and obey to the Forest code. The forest code of 1881 was the first framework which regulated the societal needs in the forest sector, its definitions having as sources the French forest code from 1827 (Dogaru, 2012). In 1910 a new Forest code emerges which substitutes entirely the 1881 and becomes applicable to all regions in 1921 and 1923. Once with the establishment of communism, in 1962, the Forest code is changed and it mainly foresees the politic requirements of the regime. The evolution of the Forest code comes only after the fall of communism in 1989 and a new forest code is established in 1996 which has clear regulations of forest administration, exploitation and use. The last big change was in 2008 (LAW 46/2008) when the Forest code was adapted to the contemporaneous society needs, mainly restitution issues. Not going further into details, many changes have suffered the forest code through the years but it seems to follow and encompass the economical, societal and environmental issues satisfactory.

NFI first cycle (2008-2012) results show that Romania has 6.9 million ha forest area with a total growing stock of 2.2 billion m<sup>3</sup>. Forest composition consists of around 26% conifers, beech 31%, oaks 17%, hard broad-leaves 20% and soft broad-leaves 6%. Owning impressive biodiversity resources as noted by Donita et al., 1990, Romania has 60 native tree species and 150 forest ecosystem types and more than 4% of plant species are endemic.

Regarding the ownership structure, the forest fund in 2017 was structured as 48.6% state owned forests and 51.4% private owned forests. The ownership is divided between: state owned forests (48.6%); territorial administrative units that manages state owned forests (15.9%); private owned forests (34.1%) and territorial administrative unites that manages private owned forests (1.4%).

In order for the mentioned distribution to happen, Romania, similar to other ex-soviet countries in Central and Eastern Europe, has gone through a process of restitution, largely based on power and money (Lawrence, 2005). The first step was done by the law 18/1991, an amount of 344.283 ha being restituted (Curtea de conturi 2012 in Nichiforel et al, 2015) to almost 750.000 former owners (Bouriaud, 2001). Another step was done in 2000 and ultimately 2005 (Nichiforel et al, 2015). The process of restitution was chaotic and lacked inspiration having negative influence towards the management of forests. In the second stage, forest associations start to be established and are consolidated in the third restitution stage Law 247/2005 which gives the rest of the forest to its truthful owners.

One of the results from the restitution process is clearly a fragmentation of properties. The structure of private ownership is as follows: small holdings (less than 10 ha), covering 850.00 ha with 828.000 owners and big holdings (more than 10 ha), covering a surface of 2.5 mill ha with 2200 owners (Abrudan et al., 2015,2002). This situation brought dramatic challenges in the Romanian forestry sector.

Areas of national importance, reserves, parks and Natura 2000 sites which falls under the Romanian Network of Protected areas, covers roughly 23% of the land area (Ioja et al., 2010). Usually, they go under the authority of Ministry of Environment and its departments and in several cases, the audit is done by the European court of accounts due to EU Funds.

After the restitution process, the administration of the forests in Romania fell under the State forest administration “RNP ROMSILVA” and territorial administrative units managed by private owners.

Ministry of Water and Forest (HG20/2017) it is the main authority in the forest sector and has the following tasks: strategic planning and actual planning; regulating services and endorsement; state authority; speaker for forestry and mediator; external financing; monitoring, inspection, control and administration.

State forest administration “RNP- ROMSILVA” it is a self-funding state forest institution working under the Ministry of water and forests and administrates roughly half of the Romanian forests. It also gives extension services for private owners and manages national and natural parks together with a horse breeding department. Under their objective falls game management as well as security for the Danube river. It administrates 22 national and natural parks maintaining the biodiversity at a high level. RNP ROMSILVA administrates ~3.13 mil. ha of state forests and gives extension services to private owners through contracts. It has 41 forest districts under its authority and a horse breeding activity. It has 5 main departments covering the all levels of management. Private owned forests are mainly managed by their own bodies through private forest districts or territorial administrative units, in some cases, RNP ROMSILVA administrates through contracts small private owner’s forested areas.

The state forest authority is exercised through Forest Guard. They act as an extension in the field of the Ministry of water and forests which is the central power in the Romanian forest sector. It has the main authority tasks of the Ministry of water and forests, most important being implementation, control and inspection. Its purpose is to transparently make sure that the Forest code is implemented in the field and more than that, exercising fair-play in control and inspection towards the forest users. It has 9 regional departments and each of them are ruled by a chief inspector named by the Ministry. Its’ main authority tasks are: implementation; endorsement; speaker for forestry; monitoring, inspection and control.

The forest management plan is developed by the INCDS (Forest research institute) which falls under the authority of Ministry of Education and Research. At the same time, forest management plans are also done by private entities (firms). All the forest management plans have to be approved by a council inside the Ministry of water and forests. To this matter, the tasks of



INCDS or private entities were not assessed in this research due to the fact that Ministry of water and forests approves the forest management plans, exercising its final decision-making status.

The research focus is on identifying the (formal) forest policy goals and finding to what extent the Romanian state forest institutions fulfill their tasks defined by the forest policy programs.

In order to evaluate the performance of the state forest institutions, the 3L Model (Krott and Stevanov, 2008) was applied. Applying this theoretical framework gives the opportunity to reveal certain situations where the state forest institutions perform in a lesser or greater manner and altogether, can help as a basis for future developing strategic options or forest policies for improvement. The main policy goals that are going to be evaluated are: *sustaining capacity for perpetual wood yield; satisfying user needs on forest goods and services; strengthening economic performance of forestry and inter-sectoral coordination* (Krott and Stevanov, 2008).

As it is defined by FAO and other organizations, the concept of sustainability encompasses the range of ecologic, economic and social values. Taking into account the ecologic level, sustained forest stands, biodiversity and protection of public and merit goods serves as one of the pillars of sustainability. Satisfying the market and non-market needs of forest users by using innovative solutions and generating profits are some of the goals that shows the efficiency in forestry production and last but not least, the social level deals with linkages within the sectors, involving society into the decision-making.

Thus, the performance will be assessed for (Tabel 1) the State forest administration (RNP ROMSILVA) with their managements tasks and for the state forest institution with authority tasks (Forest Guard), for which only the performance on private forests is assessed. The overall performance of the state forest authority is judged by whether the state via forest institution with authority tasks exercises its influence stronger/the same/weaker in private forests, in comparison with the state forests, and by the performance of the state forest administration with management tasks.

*Tabel 1 State forest institutions (Main institutions for this research)*

<b>State forest institutions</b>	<b>Tasks</b>
RNP ROMSILVA ( State forest administration)	(State forest institution with) management tasks
Forest guards ( State forest authority)	(State forest institution with) authority tasks

## 1.2 Past research using 3L Model

The theoretical framework that has been used in this research is 3L Model approach using criteria and indicators. By the use of criteria and indicators, state forest institutions performance is evaluated. First, the state forest institution with management tasks is assessed through scores/grades from 0(zero) to 3(high). Secondly, the state forest institution with authority tasks is assessed where the performance is evaluated in a comparative way between state and private ownership through a matrix. The criteria assessed are the same in both cases but the indicators differ. What is assessed by the second phase is not the forest authority itself but to what extent the forest institution with authority tasks perform their obligations in the field for the private forest sector as compared with the state forest sector.

The 3L model was successfully applied in the Balkan Region, namely Serbia, Croatia, FYR Macedonia and Republika Srpska (Stevanov et al, 2018). The findings of this paper showed that inter/cross sectoral coordination remains a massive challenge due to a lack of legal support among forest related sectors and it needs improvement. Moreover, even though the sustained forest stands are well prioritized, the user's needs are neglected in all cases. Going further into the findings, a weak success of forest authorities in providing support for sustained forest stands and market orientation in private forests seems to prevail, together with a weak political role of public forest administration too. A set of strategies were given as incentives for future improvement, here only mentioned that perpetually reinventing forest policies would guarantee sustained forest stands or by joining forces, different actors can drive the forest policy into an effective solution that approaches the all 3 levels of sustainability (Cavagnaro et al, 2017).

Chudy et al, 2016 applied the method to Poland, where state ownership exceeds 80%. This study applied the model to the State forest organization as well as to the Ministry of Environment. By using the 3L Model concept, the study shows that the requirements for sustaining forest stands are met in practice and that the state makes profits and have enough resources for an active management due to its independence from the public budgets. On the one hand, cost efficiency and innovative forest products could be improved contributing to the state forests stability but on the other hand, even though both, state forest institution with management tasks and Ministry as state forest institution with authority tasks, acts as a speaker for forestry, mediating all conflicting interests is not a goal that is fulfilled by any of them.

Bustamante, (2018) has successfully applied the model in Brazil, where the results showed that the implementation of Brazilian laws and programs are quite different in reality compared to what it is in the paper, especially restrictions on forest use. Problems concerning land use changes and illegal loggings seemed to prevail which leads to an increasing need towards strengthening the law enforcement so that the state forest institutions concession efficiency and profitability to increase.

### **1.3 Previous literature on Romanian state forest institutions**

At this moment, there is no research in Romania to specifically focus on the performance of state forest administration in a comprehensive way in order to evaluate its policy goals. Yet, some researches focused on international/regional comparisons between different state forest organizations' practices (Liubachyna et al, 2017) and changes in institutional structures (Abrudan, 2004; 2012; 2015; Bouriaud et al, 2004; 2005) whereas factors of interests were assessed from both private and state forest district managers point of view in countries where both private and state structures operate in parallel (Marinchescu et al, 2014). Other studies on the performance of forest administrations/institutions/enterprises from Romania have focused on economic perspectives (Beletu, 2011, 2013; Pache et al, 2014; Machedon 2006) as well as a rough evaluation towards ecosystems and ecotourism of forest administration, especially state-owned (Machedon, 2007, 2010). The restitution process affecting the forest-related sectors has been vastly tackled as well (Abrudan et al, 2006; Bouriaud, 2001; 2006; Bouriaud et al 2005) together with different socio-economic repercussions on forest actors (Lawrence et al, 2009; 2005; Abrudan et al, 2004; Bouriaud et al, 2016).

As it was seen above, literature upon state forest administration is rather scarce compared to private sector even though in the literature regarding private sector, relevant information about state forest administration could be found. Thus, future research towards state forest administration it is believed to be highly needed for forest policy development.

## **2. Methodology**

### **2.1 Conceptual framework**

#### **2.1.1 Public forest institutions and (formal) goals**

State forest institutions, in general, are public institutions which makes decisions towards certain issues such as sustainable use of forest resources and inter-sectoral coordination founded on general legal standards, resolving problems through implementing specific measures (Krott, 2005). These specific measures can be accounted as policy methods in particular. Finding a solution generally requires a policy analysis. Policy systems are dialectical: they are subjective creations of stakeholders and at the same time, policy systems are an objective reality and subsequently, stakeholders are products of policy systems (Dunn,1981).

Thus, the state forest institutions are fundamentally a policy system and the machinery which encompass the two dimensions of "tasks" and "structure" (Krott, 2005). A state forest institution shapes the context of forest and forestry by looking at the forest as an ecological resource, a marketable good with society involvement and all together acting and being acted upon on the political theatre. Also, it acts towards formulation and implementation of forest policy and improvement of its management.

Public goals determine the activities and outputs of public forest institutions (Krott and Stevanov, 2008). The state forest administration is key factor for forest governance, playing a decisive role into state-wide forest policy formulation through defining suitable management and appropriate tasks (Krott, 2008). In fact, through forest policy formulation it can be understood simply and clear, the establishment of goals followed by tasks to implement and achieve those certain goals. Goals are usually formulated in the national forest legislation, normative and strategies and ranges from environmental, societal and economic aspects. The goals are rarely defined in an understandable form for laymen hence, it has values scattered over a wide range of formal and informal information's (Bustamante et al., 2018).

In order to have a better understanding of policy goals and means towards, main policy goals have surfaced during the development and improvement of 3L Model (COST ACTION, 2018), mentioned also in Krott and Stevanov, 2008 and Bustamante et al, 2018 and are as followed: *sustaining capacity for perpetual wood yield; satisfying user needs on forest goods and services; strengthening economic performance of forestry and inter-sectoral coordination*. These forest policy programs have risen mainly from past analyzing European countries and have a high predisposition to changes. Similar, in some cases, certification indirectly affects the national forest programs (Auld et al, 2008).

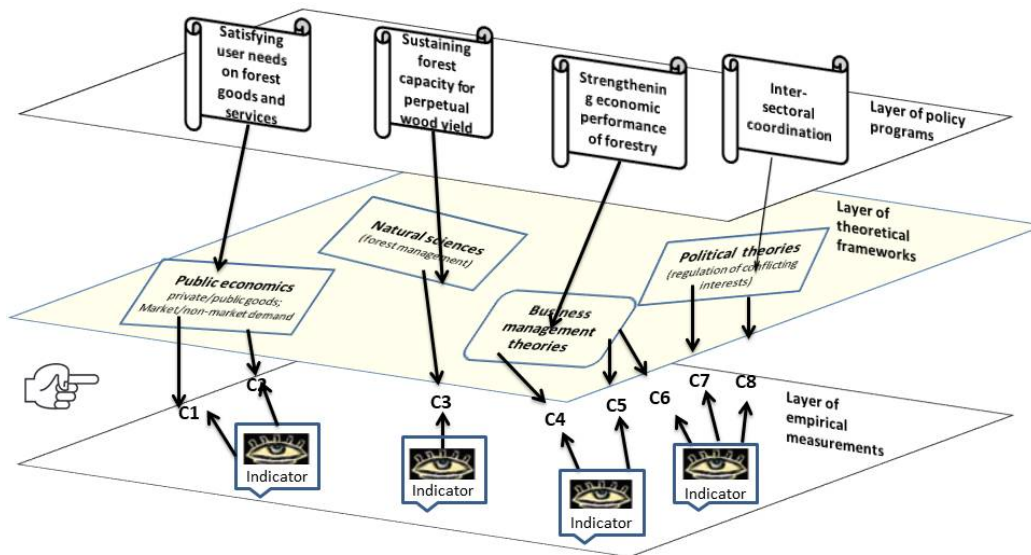
### **2.1.2 3L Model as a theoretical basis**

The 3L Model (figure 1) is based on 3 Layers as followed: Layer of Policy programs (goals); Layer of theoretical frameworks (Criteria and indicators); Layer of Empirical measurements (qualitative and quantitative measurements).

The theoretical framework layer has been classified in four main theories in order to develop the criteria and indicators of the 3L Model. These four main theories are (Stevanov, 2014): Economical theories dealing with the demand of public and private goods; Natural science theories through e.g. forest management theories; Business management theories focusing on the efficiency and profitability of the production chain; Political sciences stressing the implication of actors in forest governance theatre and its governance theories. The 3L Model takes into account the comprehensive goals relevant to policy-makers in for e.g sustainable forest management (1<sup>st</sup> Layer) and anchors them into a wide range of suitable and more relevant theoretical concepts of economic, business management, natural and political science theories (2<sup>nd</sup> Layer) and enables the design of theory-based evaluation criteria (Fig 1.), which are simple and comprehensive (Krott and Stevanov, 2008). The feasibility of the evaluation criteria (3<sup>rd</sup> Layer) is secured by focusing on the empirical phenomena which are measurable through quantitative and/or qualitative methods. Thus, it works in a comprehensive and reciprocity linkage (Chudy et al, 2016), giving a theory-based evaluation where criteria emerge and are observed on the 3rd Empirical Layer with the help of indicators (Krott and Stevanov, 2008; Stevanov and Krott, 2013). Indicators are based on particular quality features such as validity, reliability, robustness, ease and wide applicability.

Using the indicators, it will reveal to some extent, the so called “sign of symptoms” (Ramsteiner 2001:109 and Barbie 2007 in Stevanov and Krott 2013 cited by Chudy et al, 2016) without going further into details. Therefore, this paper will assess the performance of SFA on the first hand and on the other hand, the performance of state forest authority in fulfilling their tasks in the field. For this case, two sets of previously tested indicators in other countries (Krott and Stevanov, 2018) were used for the evaluation, one for the management tasks and the other for authority tasks. The criteria cannot be changed but the indicators can be adapted to the country where the institutions performance is assessed (Krott and Stevanov, 2008), in this paper no indicator have been adjusted, judging that the same indicators can be applied in the case of Romanian forest institutions.

Figure 1. 3-L Model adapted (Stevanov & Krott, 2008)



## 2.2 Methods

### 2.2.1 Performance evaluation – Criteria and Indicator (C&I) approach

Criteria and indicators were developed by Krott and Stevanov, (2008) for the 3L Model, based on specific interests of policy makers, together with the most common priority goals of forest policy programs regarding European countries (Fig. 2). The policy makers have a strong bond with all the actors involved in the process (Stevanov & Krott, 2008; Stevanov, 2014). Each of the actors involved base their judgement on self-interest towards the relevancy of the policy goals, its usefulness and simplicity in implementation and factors of change clearly defined. Thus, this approach has to tackle this issue with full coverage.

According to Krott & Stevanov (2008), the criteria and indicators (Tabel 2) are used to evaluate the performance of state forest institutions in implementing the policy goals in the forest sector. Therefore, the following criteria and indicators can be related to many countries, independent from the country reality (Stevanov, 2014). The criteria are the same in both performance assessment (C1-8) but the indicators differ. Indicators were divided for institutions with managements tasks (I-S), from indicator 1 to 20, and indicators for institutions with authority tasks (I-A), from indicator 1 to 17, in order to clarify their classification (adapted from Bustamante et. al, 2018).

1. Orientation toward market demand. This criterion evaluates whether the institution exercise or not the demand on existent private goods. The state forest institution with management tasks indicators targeted into measurements: market revenue (I-S1) and marketing competence (I-S2). Regarding state forest institution with authority tasks, the evaluation is performed through freedom for harvesting (I-A1) and quality of information about markets (I-A2).
2. Orientation toward non-market demand. It is related to the production/provision of non-market goods such as soil or nature protection etc. Indicators covering this issues for the state forest institution with management tasks are: Plans for production/provision of public/merit goods (I-S3); Financial inflow into this matter (I-S4) and the existence of auditing regarding production/provision of public/merit goods from external funds (I-S5). To the extent of indicators regarding the state forest institution with authority tasks: Restriction on forest use (I-A3) and the level of exercised control directed to private vs state forests (I-A4).
3. Sustained forest stands. Mainly directed to the level of sustainability and the degree of which it applies towards the provision of goods, especially timber. The indicators of the state forest institution with management tasks has: the existence of obligation to sustain forest stands (I-S6) correlated with the existence of forest management plans (I-S7) and altogether the fulfillment of requirements for sustained forest stands (I-S8). To the extent of the state forest institution with authority tasks, the performance refers to the “biological investments” (e.g. reforestation) (I-A5) and the total area covered by forest management plans (private vs state forests) (I-A6)
4. Cost efficiency, simply shows the efficiency towards production with the minimum possible cost. Indicators showing the state forest institution with management tasks performance are: the existent of managerial accounting (I-S9) and technical productivity of work (I-S10). Indicators to measure this criterion in the case of the state forest institution with authority tasks are: Accessibility of forests regarding forest road infrastructure (I-A7) and Technical productivity of work (I-A8) all related to the case of state vs private.
5. Profits from forests measures the amount of profit that the institutions achieve in the forests. Regarding state forest institution with management tasks, this is evaluated through operating profit per year (EUR/ha) (I-S11) and it is compared with the private



sector through appropriate indicator (I-A9) of the state forest institution with authority tasks.

6. Orientation toward new forest goods. It stresses the actions directed towards creating or improving new forest goods such as (bio economy, certification etc.). In the measurement of this criteria, for state forest institution with management tasks were used as indicators the existence of professional market information (I-S12) as well as investments into new forest goods (I-S13) and its new external partners if exists (I-S14). Regarding the state forest institution with authority tasks, the revenue from new forest goods (I-A10) and the investment towards provision/production of new forest goods (I-A11) are compare between state and private sector.
7. Speaker for forestry. This criterion will evaluate the recognition of the institution as “speaker” for the wood-based sector. Indicators that measures the state forest institution with management tasks are: Trustful cooperation with actors from the wood-based sector (I-S15); the aspiration of the institution to become a speaker of the wood-based sector (I-S16) and whether the forestry sector recognize the institution as the speak of their interests (I-S17). In the case of the state forest institution with authority tasks, the same indicators evaluate the performance (I-A12, I-A13, I-A14).
8. Mediator between all interests in forest. Evaluate the capability of the institution to mediate all interests regarding forest, including cross-sectoral linkages, not only forest sphere of work. To this regard, evaluating state forest institution with management tasks and state forest institutions with authority tasks, indicators such as trustful cooperation with actors from different forest sectors (I-S18, I-A15); aspiration of mediator’s role (I-S19; I-A16) and acceptance of mediator’s role (I-S20, I-A17) are used.

Tabel 2. Criteria & Indicators (based on Krott and Stevanov, 2013)

Goals	Criteria		Indicators	
			Management tasks (20 Indicators)	Authority tasks (17 indicators)
<b>Satisfying user needs on forest goods and services</b>	C1	Orientation toward market demand	Market revenue, marketing competence	Freedom for harvesting, Quality of information about markets
	C2	Orientation toward non-market demand	Plans for production/provision of public/merit goods, Financial inflow for public/merit good production, Auditing	Restriction on use, Exercised control
<b>Sustaining forest capacity for</b>	C3	Sustained forest stands	Obligation to sustained forest stands, Existence of forest management plans, Fulfillment of	“Biological” investments, Coverage by forest management plans

<b>perpetual wood yield</b>			requirements of sustained forest stands	
<b>Strengthening economic performance of forestry</b>	C4	Cost efficiency	Managerial accounting Technical productivity of work,	Technical productivity of work, Accessibility of forests
	C5	Profits from forests	Value of the annual operating profit per year, before tax	Profits
	C6	Orientation toward new forest goods	Professional market information, Investments into new forest goods, New external partners	Investments into new forest goods, Revenue from new forest goods
<b>Inter/cross sectoral coordination</b>	C7	Speaker for forestry	Trustful cooperation with actors from wood –based sector, aspiration of speaker’s role, acceptance of speaker’s role by other actors	
	C8	Mediator between all interests in forests	Trustful cooperation with actors from all sectors, Aspiration of mediator’s role, Acceptance of mediator’s role by other actors	

The performance of the institution with management tasks will be assessed through judging on an ordinal scale 0-3 of the indicators (zero-low-medium-high) and their manifestation combined and the overall criterion judged with the same scale (For e.g. I-S1 Marketing revenue has “3” and I-S2 Market competence has “1”, the overall judgement of C1 Orientation toward market demand is “2”).

In the case of the institution with authority tasks, the performance is evaluated by indicators performance (“+” – high; “-/+” same; “-” – low) and their manifestation combined through a matrix. Afterwards, the manifestation of the matrix is judged together with the performance of the institution with the management tasks for the same criterion, giving the institution with authority tasks a performance score on a certain criterion in regard to state vs. private. Here it is not evaluated the state forest institution with authority tasks itself but its impact on the field, more precisely in the private forest and subsequently, private vs state sector (e.g. the impact of the state forest institution with authority tasks regarding cost efficiency is lower in private forest sector than in state forest sector)

For example, (Fig.2), for Criterion 1 Orientation toward market demand, the I-A1 Freedom for harvesting is “+/-” and I-A2 Quality of information about markets is “-” and combined in the matrix results “-” which means the authority performance on the private property is “-” lower. The result from the matrix is compared with the performance of the institution with management tasks for the same criterion, in this case “2”. The performance of the state forest institution with authority tasks with regard to private vs state forest is “1” which means the impact of the state forest authority regarding orientation toward market demand is weaker in private forests than in



state forests). It must be mentioned that according to this procedure the evaluation is done for C1 to C6, the other two criteria C7 to C8 performance is evaluated through a questionnaire.

Figure 2 State forest authority performance evaluation (Based on Krott and Stevanov, 2013)

Criterion 1. Orientation toward market demand

Indicators	State forest authority performance on private forests	Private vs state forest Matrix	Performance in the state forest – management tasks	Authority's performance ( Combine performance in private and state forest)			
				3 ( strong)	2 (moderate)	1 (weak)	0 (zero)
Freedom for harvesting	+/-	Combine the indicators and their manifestation in the matrix	Performance of the state forest institution with management tasks: strong "3", moderate "2", weak "1", zero "0"			Performance in the state forest administration is "2" or moderate and performance of the authority on private forests is "-." or lower = authority orientation is "1" or weak	
Quality of information about markets	-						

Matrix: Combination of indicator's manifestations

Private vs. state forest		I : Quality of information about markets		
		Higher	Same	Lower
I : Freedom for harvesting	Higher	+	+	+
	Same	+	±	-
	Lower	+	-	-

"+" higher in private forests; "+/-" the same; "-" lower in private forests

## 2.2.2 Study area

With ~26% of its surface covered in timber-rich and overall well managed forests, Romania is rich in forests (Lawrence, 2005). Annual report for 2017 published by the Ministry of water and forests, showed data at the end of 2017, the nation forest fund accounted as 27.5% of the country area with an amount of 6.575.000 ha of forests. Based on the NFI cycle II, the National forest fund has increased to ~7 mil. ha of forests, therefore a constant increase in forested area is observed. All this was possible due to changes in forest policy regarding degraded lands which most of them are now part of forest fund.

The distribution of forests in Romania according to geographical predisposition is 33.80% plain area, 6.50% hilly regions and 59.70% mountainous regions. Thus, since a high amount of forests are situated in the mountains, the issue of forest roads infrastructure comes first into discussion as well as to what extent are the forest of Romania managed in a sustainable way based on this case. In the figure below (Figure 3) it can be seen the amount of forest based on counties, generally alongside the hilly and mountainous regions predominates forests.

Fig.3 Forested area based on counties (INS, 2017)



According to functionality of forests, there are II functional groups: Group I (57.3%) foresees management with special functions towards protection of water, soil, climate and protective areas and Group II (42.7%) foresees forests with the purpose of production and in some cases protection functions at the same time. Moreover, a distribution based on function types exists (I-VI) where in functional types I-II (23.2%) are forbidden any treatments (except II, conservation operation) and in functional types III-VI (76.8%) forest operations are allowed. Hectares of forests/per is 0.32 (1.01.2017) close to the European mean of 0.31 ha/pers.

### 2.2.3 Data collection and analysis

The initial step was to find all the actors in the forest sector. This step was based on a predefined form (Krott and Stevanov, 2008) (*see Annex I*) which helped to asses and find the most important institution/actors in the Romanian forest sector. It must be mentioned that the above cited form was filled before having any empirical measurements but was done after consulting official digital documents such as laws, articles, publications, online interviews or other similar sources. The form was adjusted after the initial step and the most important state forest institutions were taken, in this case, State forest administration, institution with management tasks (RNP – ROMSILVA) and state forest authority, institution with authority tasks (Forest Guards).

Nevertheless, once the actors have been found and their responsibilities (tasks) concerning forests preliminary assessed, the Romanian forest policy goals evolution is detailed based on available documents such as laws, regulations, articles etc. Going further, the performance evaluation is done by using the Criteria & Indicators approach developed by Krott and Stevanov, 2008.

The institution with management tasks was evaluated, namely RNP – Romsilva, using the 20 respective indicators (I-S1-20). The measurements of the empirical evidence through indicators were conducted by using documents such as annual reports, profit and loss accounts, available forest management plans, enterprise's public announcements, national strategies as well as written questionnaires collected in addition to interviews. Documents analysis and face-to-face interviews were used to measure the criteria C1 to C6, whereas written questionnaires were used to for measuring criteria C7 to C8.

Since in Romania, the authority tasks in the forest sector are accomplished by the Forest Guard's (Ministry of water and forests), their performance was evaluated. The empirical evidence was mainly through judgements of actual or former ministry/forest guard representatives and at the same time, it was judged by the forest sector personnel regarding the Forest Guard's activity in the forest sector. For example, it was asked whether the private forests sector have higher, same or lower accessibility of forests (C5-IA8) / technical productivity of work (C1-IA7). On the same page, data about private forest from documents as in the case of performance evaluation of the management tasks were used. The alternative-based judgements are well established in social sciences (Friedrichs, 2006, Neuman, 2006 in Krott and Stevanov, 2018) and was applied in this case too for the criteria C1 to C6, whilst C7 to C8 assessed direct judgements of the authority institution political role by the use of written questionnaires.

*Tabel 3. Interviews face-to-face/phone*

Date	Interview code	Position of the interviewees	Institution
09.08.2018	I-1	Head of forest district	State forests administration
23.11.2018	I-12	Forester engineer – commercial department	State forest administration
23.11.2018	I-13	Forest engineer – hunting department	State forest administration
21.08.2018	I-15	Wood buyer and forest harvesting firm	Wood sales
21.08.2019	I-16	Wood buyer and forest harvesting firm	Wood sales
22.12.2018	I-17	Forest engineer – commercial department	State forest administration
22.12.2018	I-18	Forest engineer – ecology	State forest administration
22.12.2018	I-19	Forest harvesting worker	Wood sales
15.12.2018	I-21	Lecturer in forest roads and forest engineering	Faculty of silviculture
28.04.2019	I-22	Forest association representatives	ASFOR
03.12.2018	I-23	Forest association director	Forest association
28.08.2018	I-3	Forest engineer responsible for wood sales	State forest administration
28.08.2018	I-4	Forest engineer responsible for silviculture	State forest administration
20.08.2018	I-6	Forest specialist in nursery	State forest administration
21.08.2018	I-8	Lecturer in forest policy	Faculty of silviculture
20.08.2018	I-2	Regional department of forest directorate – Head of Forest Protection, Security and Regeneration	State forest administration

In total, 23 face-to-face and semi-structured interviews (Tabel 3); phone-calls and e-mail correspondence were held from august 2018 to april 2019 with respondents from the state forest administration, state forest authority, forest associations representatives, wood industry and scholars. Conversations were held in native language and questions asked where accordingly to the indicators. Interviewees were selected based on their experience and good insight into administrations' performance and knowledge about the forest sector and from different areas but mostly in south and south-east of Romania, with high regards to cultural differences as seen in Lawrence and Szabo (2005).

*Tabel 4. Written Questionnaires sent*

Date	Interview code	Position of the interviewees	Institution
03.12.2018	I-23	Forest association director*	Forest association
03.12.2018	I-24	Former counselor in the forest department*	Ministry of water and forests
28.08.2018	I-5	Expert in watershed planning and forest inventory*	Forest research institute (INCDS)
23.11.2018	I-10	Lecturer in forest ecology and environmental issues*	Faculty of silviculture
23.11.2018	I-11	Lecturer in forest policy*	Faculty of silviculture
23.11.2018	I-14	Forest engineer – commercial department	State forest administration
23.11.2018	I-9	Cadastral measurements engineer specialist	National Agency for Cadastral and Real Estate Advertising
12.04.2018	I-26	Forest engineer – wood sales	State forest administration
15.12.2018	I-7	Lecturer in forest science and silviculture*	Faculty of silviculture
22.12.2018	I-17	Forest engineer – commercial department	State forest administration
22.12.2018	I-18	Forest engineer – ecology	State forest administration
22.12.2018	I-20	Wood buyer and forest harvesting firm owner	Wood sales
12.04.2019	I-25	Head of forest district – mountainous region*	State forest administration

Legend: \* = Apart from sending questionnaires, in this cases, interviews face to face were performed as well.

The number of written questionnaires (Tabel 4) was 13, comprising of five questions and collected between august 2018 and April 2019 and used for judging the state forest institutions performance against criteria C7 and C8.

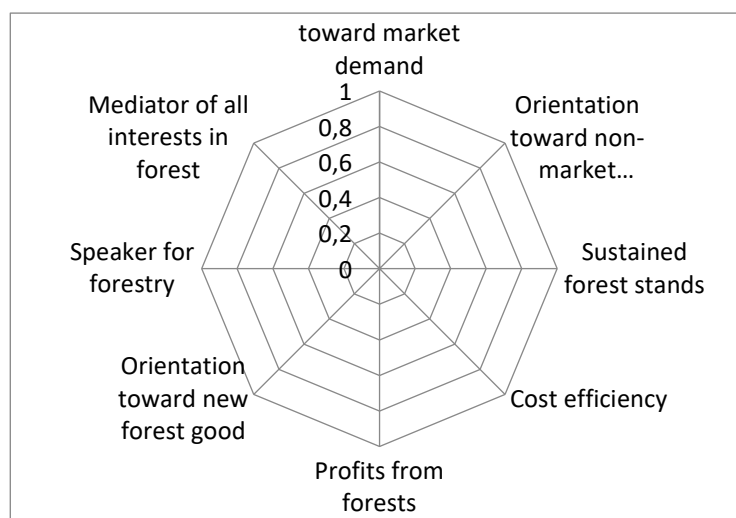
For State forest administration (i) empirical data of each indicator was collected, (ii) the data was analyzed in order to determine manifestation of each indicator e.g. in criterion 1, market revenue can be classified as “substantial” or “not substantial”, (iii) indicator manifestations were combined for each criterion, (iv) the combinations were expressed in (see *Annex 2*) in ordinal level classes ( strong (3), moderate (2), weak (1) or zero/none (0) was assigned to each criterion (Stevanov & Krott, 2013).

The performance of the state forest institution with authority tasks was assessed through the following steps: (i) empirical data for each indicator was collected, (ii) information combined into a matrix (see *Annex 3*) enabling the comparison private vs. state forests. For example, if the performance of the forest authority on private forests is stronger, it is graded “+”; if it is equal “+/-” and if it is weaker “-”; (iii) the matrix (“+”, “+/-”, “-”) were compared with the

performance of the institution with management tasks (“0”, ”1”, ”2”, ”3”) yielding the overall performance grade for the state forest institution with authority tasks (Stevanov and Krott, 2013).

After the analysis was performed, the results were expressed under the form of a rose or spider-net chart (fig.4) in order to illustrate the institutions’ tendencies. Stylistically, the chart shows each criterion performance by assigning one radial line according to the analysis.

Fig.4 Rose evaluation of performance adapted based on Stevanov & Krott, 2008



### 3. Results

#### 3.1 Romanian forest policy (formal) goals and their evolution

Finding certain connections between the policy program or goals in the model implies analyzing the evolution of forest-related regulations and laws across time in the territory that Romania nowadays is. Being always in belligerent context, different occupations implied certain regulations according to their politics and own beliefs. The policy programs (1<sup>st</sup> Layer) were taken as reference in finding correlations towards their past existence and implementation. Mentioned before, those policy goals are concluded as: *satisfying user needs on forest goods and services; sustaining forest capacity for perpetual yield; strengthening economic performance of forestry and inter-sectoral coordination.*

The care of the Romanian forest decision-makers manifested across time is materialized through regulations towards evolution, conservation and sustainable management of forests. At the same time, the tendencies of those historical times affected the decision-making to a certain extent (Dogaru, 2012)

The evolution of forest laws and regulations in Romania will be shortly described from 1786 to 2008. To this matter, the forest policy programs resemblances will be marked and assimilated to the details of the laws and regulations.

Starting with the first important act, in 1786 “Orandueala de padure pentru Bucovina” established by Iosif II is considered the oldest Romanian forest code together with the one from 1781 from Transilvania. Principles regarding conservation of forest and rational forest harvesting are mentioned such as harvesting rationally no more than the forest can give in one year. This principle is highly correlated with *sustaining forest capacity for perpetual yield* and *satisfying user needs on forest goods and services*. On the same time, regulations towards marking of trees and wood assortments evaluation are settled and the notion of forest management plan is introduced. *Inter-sectoral coordination* is vaguely mentioned by raising the awareness towards less house establishments next to the forests in order to avoid disasters. Surprisingly, the forest illegalities and wrong management of forests are being punished, the sense of forest authority comes into the question.

*The Forest code in 1881* represented the first legal frame-work that regulated the social relations towards the forest domain of that time. It stresses out the Romanian society needs at that time to a certain degree. Remarkable, the term of “forest regime” is first mentioned here, mainly due to the legal frame-work being inspired by the French model. Due to the liberal mentality of that time “*the satisfying user needs on forest goods and services*” is seen through giving to every owner the freedom to disposal of his forest according to the forest regime.

Not giving the possibility to harvest without a forest management plan contributed to sustained forest stands and indirectly, its conservation. Moreover, a special commission is established towards approving the forest management plan but the final word as “supreme confirmation” is given by the King at that time. The forest harvesting operations are allowed based on “a good motivate permit” for the forests that goes under the forest regime. The start of forest management plan establishment is a positive mean to express the evolutions of the forest sector even though it is made for 15 years. Even though the conditions and criteria towards forest illegalities is poorly set and defined, the first modification to his forest law came in 1887 with some critics as well but altogether, it supported the evolution of the forest sector through its democratic ideologies and reflections of the political spectrum at that time.

*The forest code from 1962* responds directly towards the socialist characteristics after the WW2. The freedom for harvesting and restriction on use is clearly blocked as well as forest ownership. Prior to this, on 13 April 1948, all forests are nationalized thus, the forest code from 1962 mention that all forests and lands with forest vegetation are state property and together constitutes The National Forest Fund. Of course, the property rights are turned into pieces but the conservation and forest management went through a positive effect, resemblances to the forest policy “*sustaining forest capacity for perpetual wood yield*” goal.

In this forest law, regardless of the political spectrum at that time, the forest fund and forest regime is defined as well as land circulation and forest fund administration. Moreover, the

sustainable management of forest stands, security and protection of it is mentioned in Chapter III-IV, raising awareness towards the forest policy programs that this paper look for.

*Strengthening the economic performance* goal is exercised by establishing norms and regulations into the wood circulation. At the same time, forest illegalities are better defined, together with their legal punishments and contraventions. It can be accounted that the rational use of forests under the appliance of forest management plan is strongly exercised.

After the fall of communism in 1989, the Forest law had to be adapted to the country needs. Therefore, a *new Forest code is established in 1996* having the main regulations as before but more importantly, based on the Forest restitution law in 1991. the new forest code is adapted towards the object of state and private property, setting property rights regulations in regard to forests. The above mentioned Forest code has suffered many changes such as: O.G 96/1998 regarding regulations of forest regime and Forest National Fund administration; Law 1/2000 being the second restitution stage and Law 247/2005 being the third stage.

All types of land that are accounted as forests or forest vegetation, regardless of ownership are accounted as National Forest Fund. All owners are obliged to obey the forest regime and prescriptions from the forest management plan, contributing to the maintenance and integrity of the National Forest Fund. At the same time, a classification of forests based on their functionality and economic status is established.

Similar to the past Forest codes, norms regarding the forest harvesting and administration are based upon land use; norms regarding protection and security of forests as well as legal norms to mitigate illegal activities are seen to prevail. Altogether, the forest code from 1996 has been hard to implement due to the past communist era and lack of trust between people even though it was based on preventing negative factors to happen and interfere with the forest policy goals that the decision-makers have established.

After approximately 12 years, in 2008, the Forest law 26/1996 and the past series of modifications are abolished through Law nr.46/2008, respectively the ***Forest code from 2008***. It treats the notion of forest and National Forest Fund with the same predispositions and changes in the forms of ownership as the Forest code from 1996.

Correlated to the forest policy goal of *sustaining forest capacity for perpetual wood yield*, in Art.5 of Forest code, the principles of rational use of forests are defined. The applicability of those principles is regulated through forest management plans for both private and state forest owners. Moreover, in Title III, the concept of sustainable forest management is defined by setting regulations towards the establishment of a forest management; conservation of biodiversity; ecological reconstructions; forest regeneration and forest regeneration maintenance; ensuring the integrity of the national forest fund; fire prevention and extinguishing as well as security and protection of Romanian forests.

Through art. 10, the obligation towards forest administration is laid down by establishing forest districts regardless of ownership (state forest districts and private forest districts). By this article, the forest policy goal *satisfying user needs on forest goods and services* is exercised and creates



an efficient warrant towards the right of disposal of their property in the case of private owners through specialized private forest districts in concordance with the forest regime. The changes in forest land property and administration have risen many questions and challenges on both sides, state and private forest administration structures (Marinchescu et al., 2014)

By art. 33, all the forest policy goals are exercised due to the fact that regardless of ownership, each forest owner has to establish a Regeneration and conservation fund. In the past forest laws, only the state forest administration was obliged to create such a fund. Nevertheless, this forest fund is a mean towards future investments towards each level of sustainability, even though the policy goal “*strengthening economic performance*” prevails.

A critical positive change compared to the past forest laws is art. 59 which states that the annual harvesting possibility is set through the forest management plan and it cannot be exceeded. In the past forest laws (1996), the annual possibility was established through governmental order. Ecological balance is strengthened through reducing the amount of ha in which the clear-felling can be performed, from 5 ha to 3 ha and also is forbidden to clear-fell in national parks. This constitutes a great evolution towards the sustain of forest stands and forest capacity for perpetual wood yield.

The forest policy decision-makers have gotten a step forward by relying on the objective of forest protection through means of administration and sustainable forest management, targeting towards a reasonable and rational use of the tremendous environment of functions that the forest have. Whilst the evolution of forest laws is continuing, the views should be diversified and an approach towards global environmental requirements is something to look forward to.

The forest authority, namely Ministry of water and forests, have established a National forest strategy 2018-2027 which foresees principles of a rational and sustained management giving incentive and predictability towards the forest sector for the upcoming 10 years. It is based on open participatory processes related to national, European and international context. One of its main objectives is to correlate the forest sector policy to other sectors related to forests such as agriculture, rural development, energy, education and tourism. Therefore, it can be assumed that *inter-sectoral coordination* is the main goal of this strategy, combining the economic, social and environmental perspectives together.

The National forest strategy 2018-2027 has 5 strategic objectives: Efficiency of the institutional and regulatory framework for forestry activities; Sustainable management of the national forest fund; Increasing competitiveness and sustainability of forest industries, bioenergy and bio-economy as a whole; Develop an effective system of awareness and public communication; Development of scientific research and forestry education. This policy framework as a whole address to the *policy programs* in this research and it has the preconditions of a positive tremendous evolution targeted to the forest sector.

In 2013, the Ministry of environment has developed the National strategy on climate changes for the period 2013-2020. Its main objectives are roughly speaking: reduce CO<sub>2</sub> emissions and mitigate the effects of climate change, based on EU laws and regulations that are targeted to this matter. This strategy targets forests mainly through CO<sub>2</sub> sequestration. To this regard, increasing



the national forest cover is a strategic goal established through forest ecological reconstructions and stopping the illegal harvest. Moreover, environmental protection and efficient use of forest products are also goals in this national strategy, together with raising awareness about the existence of the situation as well as future research to mitigate it. All having said, the main concern this national strategy regarding the forest sector is mainly correlated to afforestation and the benefit of increasing forest cover towards climate change mitigation. All the above mentioned goals are in close relation to the research strategic goals with much less impact towards “*strengthening the economic performance*”.

The National Rural Development Plan 2014-2020 has been established by the Ministry of Agriculture and Rural Development in 2013 and is directed towards the development of Romania as a whole. This is made through different measures for different sectors since Romania has more than 80% rural areas. Regarding forests, 2 main measures are targeted towards financing afforestation and forest-environment protection/merit goods provision. Moreover, different measures indirectly target the forest sector through inter-sectoral linkages with agriculture and goods production, the linkages fundamentally aiming the reduction of CO<sub>2</sub> emissions by increasing forest cover. This national plan is strongly related to *inter-sectoral coordination* goal as well as *satisfying user needs on forest goods and services*.

Thus, taking into account the main forest and environmental policy programs expressed through different laws and national strategies in Romania, correlated with the 3-L Mode policy programs and goals (1<sup>st</sup> Layer), some interpretations can be performed. The majority of the policy programs and goals falls into the *sustaining forest capacity for perpetual wood yield* and *satisfying user needs on forest goods and services*. This is perceived only as part of political discourse and not exactly exercised in practice due to high level of bureaucracy and group identity problems that forest personnel face nowadays. Surprisingly, quite a high amount of policy provisions applies to the *inter-sector coordination* program and this may be judged as a consequence of several changes in ownership of the forests which raised very much criticism but, the results are yet to come, improving the communication between the various factors involved in forest land management seems to be difficult but a necessity. *Strengthening economic performance* as a policy goal is exercised to a lesser extent and it is quite understanding since the economic performance from forests is judged as high yet the finances are not sustainably managed. All of these cases have put “close to nature forestry” next to the name Romania.

## **3.2 State forest institutions performance**

### **3.2.1 State forest administration – institution with management tasks**

The state forest administration was first established in 1991 (HG 1335/1990) under the authority of Ministry of Environment, under the name “ROMSILVA – R.A”, its main purpose being a rational management of the National forest fund based on ecological principles and forest management plan. Its main tasks at that time are strongly correspondent with all the policy programs that the 3-L Model analyzes. Its structure was based on a Counsel of administration and a General director, the internal structure of “ROMSILVA” – R.A as a whole is approved and performed by the Counsel of administration.

Nevertheless, in 2009, after several modifications, through HG 229/2009, a restructuring of ROMSILVA is performed as well as approval of the organization and functional rules. Thus, it has under its administration structures without legal status such as: 42 forest directorates, a game research center and a department regarding horse breeding. Moreover, 22 national and natural parks go under its administration. Legal status is attributed to the national and national parks in 2009, giving the possibility to access EU funds which was not able to achieve before 2009, having legal status is a EU funds requirement. The now established tasks are similar to the previous structure encompassing the ecological, economic and social aspects by applying the national strategies regarding forestry, silviculture and a rational sustainable management of forests.

Furthermore, in the Law 46/2008 the Forest code, the obligation of state forest administration falls under ROMSILVA through its subdivisions (Forest directorates). The sources of revenues are clearly defined in art. 11 and certain structural and organization attributes.

Therefore, ROMSILVA is the autonomous state institution with legal status which administrates the state property, in this case state forests, according to principles of sustainability at all levels. Its activities are regulated through the Forest code, rules and normative laws targeted towards the forest sector. Its declarative tasks are to contribute towards ecological improvement of the environment and maintaining a constant share towards the economy through forest goods and services.

The evaluation of the State Forest Administration “ROMSILVA” was conducted by the use of the 3-L model. By using criterions and indicators, the first 6 criteria are addressed towards assessing the institution performance of management tasks defined in the laws, regulations and national strategical plans. Criterion 7 and 8 looks to find its contribution towards the acknowledgment and acceptance of its status e.g. representing all interests in the forest sector.

## Criterion 1. Orientation toward market demand

### *I-S<sub>1</sub> Market revenue*

Market revenue represents income received by the State forest administration from selling goods and services. To this matter, analyzing the past three years, in 2016 the revenue from selling goods and services under the general economic term of “harvesting” is accounted as 99.8 % from the total. Almost same can be said about year 2017 (99,89%) and year 2018 with 99.9% out of the total revenue (financial statements of the SFA available at [rosilva.ro/rnp/buget\\_si\\_situatii\\_financiare\\_\\_p\\_55.htm](http://rosilva.ro/rnp/buget_si_situatii_financiare__p_55.htm)).

Comparing to the total revenue, it can be assumed that the revenue from selling goods and services makes a “substantial” status out of this certain indicator, highly surpassing the limit of 70%.

It must be noted that the total revenue went to 559.852.265 Euro’s which means almost 20% more than the estimated revenue in the financial statements with a cost of 506.072.211 Euro’s and 10% net profit. On 13.12.2018, the head of the economic department of the SFA stated in a conference that the revenue will be ~25% higher from the value stated in the financial statements and the costs increased as well due to the “fire wood crisis”.

It is expected that the total revenue in 2019 to be 10% less with a net profit below 4% according to an analysis provided by FORDAQ.com in April 2019 (Tabel 5)

*Tabel 5. Expected financial statements 2016-2019 (Proposed budget)*

Year	2016	2017	2018	Proposed for 2019
<b>Total revenue, Euro</b>	381.707.064	416.096.954	450.797.596	504.862.404
<b>Total revenue from “harvesting”, Euro</b>	381.023.409	415.661.901	450.466.128	504.618.249
<b>Total cost from “harvesting”, Euro</b>	347.938.679	380567640	414.025.074	487.068.073
<b>Percentage of “harvesting revenue”, %</b>	99.8	99.89	99.9	99.9

### *I-S<sub>2</sub> Market competence*

The progress of the market competence in Romania has to be strongly correlated to the Forest restitution laws as it has been certainly directed towards a market based economy.

The Law 18/1991 made it possible to return 1 ha of forest to former forest owner, having also the possibility to request the remain surface detained, the limitation being of maximum 30 hectares (Nita, 2015). Furthermore, Law 1/2000 gave more forest at the hand of their initial heir, up to 10

ha per individual, 30 hectares to churches and all forests are being restituted to the communities (Lawrence and Szabo, 2005). Taking into account this briefly mentioning, private ownership has constantly increased during this period of uncertainty and at the same time, awareness regarding illegal logging (Nita, 2015) too, which was presumably based mainly on private forest land. The forest ownership in 2017 was roughly 51% private owned and 49% state owned (INS, 2017) and based on the empirical measurements, in 2018 hardly had it changed.

The harvesting amounts (annual possibility) is clearly defined in the forest management plans and no forest operation can be performed outside its harvesting possibility, facts are explicitly mentioned in Art. 59 of Forest code 46/2008. The harvesting possibility can be exceeded in exceptional cases mentioned there.

The wood assortments are defined in standards known as STAS 4579/2-90 before 1997 and now renamed as SR (Romanian standards) elaborated by ASRO (Romanian association of standardization) and approved by the public authority, respectively Ministry of water and forest. The volume evaluation which will be marketed is strongly correlated to the standards and acts as normative law O.M nr. 1651/2000. It may be mentioned that according to scholars interviewed, the standards are somewhat outdated and its development requires a great volume of work, therefore a lot of time. That certain normative gives strict directions towards how the primary and secondary products is sorted into assortments and the results are noted in an evaluation act named APV. Based on this evaluation act, the forest harvesting is performed by different entities and it is regulated by the law H.G. 715/2017. Almost no harvesting operation can be done without an APV (evaluation act), the exception comes from small private owners with less than 10 ha and they can harvest an amount of 5 m<sup>3</sup>/ha/year as mentioned in the Forest Code 46/2008.

The State forest administration can be accounted as the biggest entity that puts forest products on the market. This statement is supported by the report of Nation institute of statistics 2017 (INS) where 12284 thousands m<sup>3</sup> of timber was harvested from public owned forests, SFA harvesting a total of 9684 thousands m<sup>3</sup> as opposed to 5060 thousands m<sup>3</sup> in private owned forest out of the total harvested volume of 18316 thousands m<sup>3</sup> in Romania, regardless of the ownership. To this fact, a high number of the interviewees, including scholars too, argued that the quality of resource that it is harvested gives the higher advantage towards who is the biggest entity that sells timber rather than harvested amounts.

The harvested volume reported officially by the SFA through their annual report was 9595.9 thousand m<sup>3</sup> and its accounted as followed: 5622.3 thousands m<sup>3</sup> of standing wood; 2005.3 thousands m<sup>3</sup> through offering extension services and contracts with economic agents and 1968.3 harvested with their own harvesting formations.

But, in the same annual report, based on a change in the Forest code 46/2008 during the year of 2018, the forest administration was forced to switch some of their secondary products to standing wood for commercialization in order to be sold. Thus, the harvested number suffered some changes as followed: 6.369.013 m<sup>3</sup> standing wood; 1.219.056 round wood and 1.704.205 fuel wood. Total of the harvested volume is lower than the first reported numbers of 9595.9 thousands m<sup>3</sup> compared to 9.292 thousand m<sup>3</sup> after the article in the Forest code changed. At the

same time, the total harvested amount is lower than 2017 based on the NSI report (9684 thousand – 2017) and the volume resulted from the primary products (excluding PCT/cleanings) was 3% higher but the average price was 15% higher than 2017. The harvest volume from the secondary products, due to the changes in the Forest code, was -77% lower than 2017. Adding to the facts, the average price for standing wood (46.78 euros\*) was 34% higher than the reference price nationally set. It must be mentioned that the change in the Forest code was targeted towards the reducing “firewood crisis” by increasing the supply for population.

Moreover, a big change in the selling of round wood has come across the SFA too. The amount of round wood offered in auctions in 2018 (645831 m<sup>3</sup>) was approximately less than double the amount from 2017 (1475464 m<sup>3</sup>) but the amount of volume contracted remained identically (1291056 m<sup>3</sup> both years). The round average wood prices varied from 69.32 euro’s\* beech round wood to 343.47 euro’s\* oak aesthetic veneer.

The price for 1 m<sup>3</sup> in the case of public owned forests is set by the decision of the General director of SFA on a local, regional and national level as well as for owners of public owned forest administrated through Administrative territorial unite (UAT). The price is known as “reference price” and it is established according to species/group of species; grade of accessibility; assortments and type of product. This fact is supported by the HG 715/2017 and applies only for public owned forests. Based on the empirical evidence, interviewees 6,8 and 18 stated that a price is decided by the economic department in each local directorate, regionally centralized and send to the national center. The national center unit analysis the prices and the general director makes a decision and it is publicized on the SFA website as well as [www.produselepadurii.ro](http://www.produselepadurii.ro).

Regarding private owned forests, the owner decides his own price. It must be noted that in the case of territorial administrative units that have legal personality, the central-hall council accepts or rejects the prices proposed by the UAT. Interviewee 5 stated that due to the fact that the center-hall is highly politicized, the decision might suffer several rejections.

The main issue that Interviewees 5,7,11 and 18 stated is that the price that SFA set for the public owned forests indirectly affects the market by forcing private owners to center their price on SFA decision. Market competitiveness seems to raise many questions to different actors in the forest sector in Romania regarding the prices diversity since all the actors in the forest sector apply to the HG 715/2017.

According to the Forest Code 46/2008, an individual who has more than 10 ha is obliged to find a contractor if he wants to harvest his forest. To this matter, forest harvesting companies are ought to be established. A forest harvesting company can be established by an individual or a local forest directorate if they have a harvesting formation regardless if they manage private or public forests.

Thus, in order to perform harvesting operations, forest harvesting permits (certificate) is needed. This is issued by the Commission for certification. This Commission was restructured by the O.M 1106/2018 and it is established inside an NGO named ASFOR which states for Association of foresters in Romania. The Commission have members from ASFOR as well as from the

Ministry of water and forests. The decision is based on certain criterions listed in the Order of the Ministry specified above. The certification is issued with the power of the Ministry of water and forests through their members inside the Commission, the ASFOR members usually handles the bureaucracy more or less through the Secretariat of the Commission.

According to the EU Guidelines nr. 995/2010 the entities that wants to introduce wood products into the market, are obliged to have the “due diligence” system. Before 2016, ASFOR issued the DD system, but once with the establishment of Forest guards in 2015, this task was send to the Forest guards which answers directly to the Ministry of water and forests. Based on the HG 845/2015, the harvesting operators are obliged to use a “due diligence” system. By analyzing the data and the Governmental order 845/2015, the founding of SUMAL is an exercised form of “due diligence”. SUMAL states for “Integrated tracking informational system of wood products”. It was applied to the country’s need and its certain requirements and terms of use are ought to be applied. A forest harvesting firm/formation can only be legally functioning if they have the Harvesting permit (certification) combined with the Due diligence system through the use of SUMAL. After an auction is finalized, the Forest district Office issues a harvesting authorization based on which the contractors are able to take actions. Furthermore, an environmental authorization its needed along the way and its issued by the Regional Agency of Environmental Protection (ARPM).

Interviewees from both state and private directorates, stated that the Due diligence system is working really good but there are some certain situations that needs improvement e.g GPS signal cover. Many of the forest harvesting firm’s owners seems to have no idea what a DD system is but they just know that they need it in order to contract and perform harvesting operations. Separating this two permits into 2 different entities is presumably raising the bureaucracy and at the same time, gives more power to the forest authority. Compiling what have been said regarding the forest harvesting permission, this could influence the market competence by over-regulated and lack of representing the forest harvesting firm owners’ rights by ASFOR as it was stated by the Interviewees 19.

The forest harvesting entities provides harvesting services through contracts. They can be assumed as being contractors. In order to get contracts, they have to attend auctions. The auctions in Romania are regulated by the law HG 715/2017. Every contractor that are legally allowed to harvest, can attend the public auctions. Types of auctions in Romania ranges from English auctions and Sealed bid auctions, to mixed auctions and electronic auctions through a website called generically SEAP (Electronic system of public purchases). If a certain amount (lot) is not sold after two organized auctions, according to HG 715/2017, the parts involved starts to negotiate and the price cannot be lower than the last bid. Forest harvesting entities bid forest products according to assortments, accessibility and APV price mentioned before. According to different interviewees, the English and sealed bid auctions are the most common ones whereas the electronic auctions are steadily increasing in demand. The state forest administration uses all of them, putting wood on the market as much as they can. It is definitely known that online auctions are the most transparent and secure as Romania faces many forms of corruption as stated by Bouriaud, 2012.



Interviewee 5 said that electronic auctions are accounted as ~70% but provides some uncertainties regarding the system called SEAP, where the auctions take place. If an entity is putting out wood on market and exceeds a certain amount of money e.g 20.000 Euro's, they get thoroughly investigated by the Ministry of finance authority, named ANAF.

Data about the amount of imports and exports of wood in the case of Romania was taken from Eurostat databases shown in tabel 6.

*Tabel 6 Production, exports and imports Romania (Eurostat database)*

<b>Romania</b>	<b>2016</b>	<b>2017</b>
<b>Round wood production (rough), thousands</b>	15,117.00	14,492.00
<b>Export, thousands</b>	158	187
<b>Import, thousands</b>	2371	1825
<b>Fuelwood production, thousands</b>	5,164.00	4,914.00
<b>Export, thousands</b>	81	69
<b>Import, thousands</b>	601	346
<b>Conifers fuelwood production, thousands</b>	870.00	858.00
<b>Export, thousands</b>		5
<b>Import, thousands</b>		281
<b>Non-conifer fuel wood production, thousands</b>	4294	4055
<b>Export, thousands</b>		63
<b>Import, thousands</b>		66
<b>Industrial wood production, thousands</b>	9953	9578
<b>Export, thousands</b>	85	119
<b>Import, thousands</b>	1769	1478

Due to the high prices that the state set for the public forests, the values for 2016-2017 of imports are clearly high, especially in 2016 regarding round wood and fuel wood and even though in 2017 it seems to decrease, it is still performed. Interviewees that are related to harvesting firms stated that they were forced to import even fuel wood due to lower prices in other countries and in some cases, round wood or valuable assortments were sold as fuel wood because the prices for fuel wood were higher than for some valuable assortments. This issue is presumably solved today due to changes of HG 715/2017 regarding evaluation of wood.

State forest administration has established in 2016 a department named Department of Marketing. It can be argued that it is a rather new established branch in the SFA but it cannot be judged based on that fact. Among their tasks, they overview the evaluation of primary and secondary forest products; the office of hunting and salmon-culture; the office of forest harvesting and wood processing and lastly, an office towards marketing. The former director of the department stated in the same interview in 2016\* that they are strongly engaged in

strengthening the communication between the SFA and economic agents. Moreover, he stressed a constant progress into developing a market strategy into satisfying the users need. On the same page, secondary forest products were assumed to rise in production in order to diversify the market and bring the sustainability concept into development.

The Administration council of the State forest administration accepted on 26.06.2018 a project called Strategy of Marketing 2018-2020 (H.C. 09 / 26.06.2018). Since 08.2018 when the director of the Marketing department approved the strategy, in their 2018 report regarding the SFA activity, some achievements were stated:

- branding a motto called “Conteaza pentru viitor” for 10 years;
- purchasing 6 movie productions towards promoting SFA services and products – 3 movies were already established;
- participating in 5 expositions inside and outside the country; approaching certain big chain stores regarding a future collaboration in selling game meat;
- 5-year partnership with the National rugby federation;
- certain forest educational projects promoting SFA activities;
- publication in a magazine for tourism and elaboration of a firewood procurement guide in association with the forest products evaluation sub department.

The up mentioned achievements are seen as the most important ones and an increase into raising awareness is definitely seen. It can be said that it shows a good start and the need of being relevant its taking form. This can be due to the ownership change in the past decade and SFA starting to lose its relevance. It must be mentioned that before 2018, SFA rarely showed any means of investing towards marketing.

Performance judgement: Taking both indicator manifestations together, the orientation towards market demand can be estimated as moderate or “2”. State forest does not have monopoly over the wood market even though most of their revenue comes from wood sales. The annual amount harvested by the state forest administration has increased from 2015 – 8.971.000 m<sup>3</sup> to 2018 – 9.595.000 m<sup>3</sup>, the difference is mainly assumed to be due to changes in forest laws, having nothing to do with age class distribution or other certain characteristics. A better law enforcement and the establishment of a separate Commercial department might have influenced the increment in harvesting amounts.

## **Criterion 2 Orientation toward non-market demand**

### *I-S<sub>3</sub> Plans for production/provision of public/merit goods*

Plans for public/merit goods are included in the overall management plan of a forested area. Protection forest is classified based on zoning and utility (soil protection, erosion etc.). Every management plan has to be done according to Technical norms regarding the establishment of management plans updated on 23.07.2018. Such plans exist on the majority of the area but there are no separate management plans regarding protection of forest goods.

In the case of protective areas, a report from ANAP, institution working under the Ministry of Environment, states that in 2017, 713 protective areas have a management plans from a total of



approximately 1.000. In the laws regarding protective areas like Law 5/2000 and O.U.G 236/2000, a management plan for protective areas is elaborated by the protective area administrator with the approval of the Ministry of Environment and notice/opinion of the Romanian Academy.

An annual report of the Ministry of Environment from 2017 stressed the problems concerning the over whelming bureaucracy and overlapping of protective areas where national and international protected areas overlap.

The State forest administration administrates 22 national and natural parks in collaboration with the Ministry of Environment through their Protective areas agency (ANAP). Moreover, SFA has under its administration a game museum named “Muzeul cinegetic al Carpatilor –Posada- “. Each national or natural park unit is affiliated to the SFA and works as a legal entity thus, are able to use external funds for future development. All 22 national and natural parks have a management plan.

Therefore, it can be accounted that management plans exists and in case of protection forests, they are included in the overall management plan whereas protective areas have their own separate management plan.

#### *I-S<sub>4</sub> Financial inflow*

State forest administration overall investments can be found in their Annual report 2018 on their website. Therefore, the sum of all the approved investments accounts for ~54.677.160 Euro's as follows: 62% from their own budget while 38% are external funds from state budget, BDCE external credits and partnerships with other institutions (Ministry of environment etc.) through the Plan for the regional development. An amount of 684.773 Euros are invested into establishing shelterbelts which can presumably be seen as investment towards protection against erosion, wild fire etc. and from this amount, only 4.9% has come to realization.

Regarding protective areas, the State forest administration administrates the 22 national parks and the game museum through affiliation, giving to legal personality to managers based on the law HG nr.229/2009. Since the SFA has to administrate the areas, they invested from their own budget 6.204.732 Euros in 2018 for managing. Due to the legal personality status that the affiliates have, they are eligible for EU Funds. Thus, the 22 national and natural parks have taken as external investments an amount of 493 827 Euros. This amount does not count for external funding for State forest administration since the affiliates have legal personality.

On a final remark, the total investments are 6% from the total revenue of RNP ROMSILVA and investments into provision of public/merit goods are approx. 20% from the total investments. Highest percentage of investments are allocated towards forest infrastructure development. This situation can be explicable since there are no separate management plans for the public/merit goods, this being included in the overall forest management plan.

### *I-S<sub>5</sub> Audit*

RNP ROMSILVA has a department called Internal audit committee. This Committee conducts internal audits regarding all the activities done. Every unit regardless of its status that works under the RNP-ROMSILVA, make their own audit and are centralized. A report regarding the internal audit in 2018 can be found on their official website (Romsilva, 2018). Based on the report, no external audits were conducted in 2018 but according to national laws and international standards, an audit is done every 5 years by different institutions.

Since the investments outside their own budget comes from state budget, the audit is done by The Romanian court of accounts. Moreover, the audit that RNP ROMSILVA conducts every year is reported to the Ministry of water and forests which report to the Ministry of Finance who conducts audit themselves and through their body UCAAPI (Central harmonization unit for internal public audit). Since there are no investments from EU Funds found in the RNP-ROMSILVA registry, no external audit is done as well. Exception being national and natural parks which are audited by the European court of accounts but the national and natural parks have legal status thus, don't count as investments in RNP-ROMSILVA.

Nevertheless, the amount of external investments is presumably seen insufficient and insignificant regarding protection of forests (Abrudan, 2009). The audit results give only incentives towards improving and there are not adequately taken into consideration.

Performance judgment: Taking all the indicator manifestations together, the orientation of the State Forest Administration toward non-market demand can be determined as “1” or weak. This slightly positive aspect is that plans exists but not for the whole area financed by their own budget and in the cases of National Parks, EU funds are mainly the whole budgetary means.

### **Criterion 3 Sustained forest stands**

#### *I-S<sub>6</sub> Obligation of sustained forest stands*

The Law 46/2008, Forest Code, obliged forest owners regardless of the ownership to apply to its rules. Thus, Art. 5 of the Forest Code states clearly the principles of sustained forests, backed by a definition of the sustainable forest management in Art. 5 through its Annexes. The criteria for sustainability are similar to Poland (Chudy et al, 2016).

Theoretically, the sustainability concept is visible in the laws but according to Interviewee 2, on the field is another “story”. The sustainability concept is being stated in a declarative way because “profitability despite everything” is required all the time.

#### *I-S<sub>7</sub> Existence of forest management plans*

Managing a forest in Romania is regulated by the Forest management plan. Art 20 (2) in the Forest Code 46/2008 states that having a forest management plan is a must if the owner has more than 10 ha regardless of the ownership. Nevertheless, in Title III of the Forest Code 46/2008, the detailed regulations regarding the forest management plans are very well described. It ranges from what should a forest management plan structure be and have, to who makes and approves

them as well as their periodicity or principles used in the making. Thus, it can be said that the forest management plans exist for a substantial area of forest in Romania.

### *I<sub>8</sub> Requirements for sustained forest stands*

The basic requirements of forest sustainability arise under the general statement that forest area, growing stock and average annual increment should not decline over time. Thus, statistics regarding these situations are found in the National Institute of Statistics or National Forest Inventory.

Based on the annual report of the activities regarding forests in Romania (INS), showed that from 2013 to 2017 the National forest fund hardly had changed. From 6.539 thousand Ha. in 2013 to 6.565 thousands Ha. in 2017 it can be judged that the forest cover barely changed, rather remained constant. In 2017, the State forests accounted for 64.5% of total forested area in Romania according to INS. Analyzing the data provided by the State Forest Administration report for 2018, the state forests managed by SFA accounted for 3.135 thousand of ha. compared to 3.138 thousand of ha in 2017. The amount in 2017, based on the report by SFA shows a small statistical difference compared to the INS report of 4.233 thousand of ha for state forests from which 3.189 thousand are mainly managed by SFA. The errors based on which the research was done might be at cause and the fact that INCDS “Marin Dracea” administrated roughly 48.000 ha of forests and State Patrimony Administration 2500 ha in 2017. It can be assumed that 2013-2017 had a constant forest area cover but with high changes towards ownership.

Since the INS will publish the annual report regarding 2018 in 31.07.2019, data were unavailable from this institution. Nevertheless, NFI (National forest institute) has published their results for the CICLE II 2013-2018. In this report, the National Forest Fund had 6.929 thousand ha by the end of 2018. This big change in forested area is due to incorporating the forests outside the National Forest Fund into National forest cover (~364.000 ha). In a conference from December 2018 organized by an NGO, the results from CICLE II were discussed and they assumed that the incorporation of those roughly 400.000 ha can be explained by the resilience of trees and their capacity to form a forest over time. This change became highly contested, many people interested in forests, including people interviewed, argued that it might be part of political discourse and image strengthening of forests which faces not so few accusations regarding illegal activities.

According to report on forest activities made by the Ministry of Environment, in 2013 the mean annual increment was 8.8 m<sup>3</sup>/ha/year. The following years from 2014 to 2017 the M.A.I remained the same: 7.8 m<sup>3</sup>/ha/year. Due to the changes in forest cover in 2018, it is expected that the M.A.I to be higher and based on the statistical data provided by IFN for Cycle II, the current annual increment is 8.46 m<sup>3</sup>/ha/year for 2018. In every report, is stated that the increment is higher than the European M.A.I of 4.4 m<sup>3</sup>/ha/year even which is a fact of course but it is used as media image since Romania harvest far less than the current annual increment.

The current annual increment from previous years couldn't be found in any reports made by the Ministry but IFN Cycle II in 2018 showed that the C.A.I is 58.622.945 m<sup>3</sup>. The annual allowable cut 2014-2017 remained constant as followed: 2014 (22.1 mil. m<sup>3</sup>); 2015 (22.2 mil. m<sup>3</sup>); 2016

(22.05 mil. m<sup>3</sup>); 2017 (22.05 mil. m<sup>3</sup>). Based on this fact, the annual allowable cut should be the same in 2018. From this annual allowable cut value, in 2017 - 18.316 mil. m<sup>3</sup> were harvested; 2016 - 17.198 mil. m<sup>3</sup> and by the end of December 2018, 16.850 mil. m<sup>3</sup>. It can be assumed that a loss of wood material happens every year, many forest business-men and all the interviewees agreed upon this issue. The annual allowable cut is specified in each and every forest management plan according to its length. Usually, a forest management plan is done for 10 years, therefore the annual allowable cut is established by dividing the allowable cut set in the forest management plan to the length of the forest management plan (Forest code 46/2008). The allowable cut is set by the ones who make the FMP according to the state of the forests and by implementing the laws (harvesting age mainly according to all the interviewers).

Forest road infrastructure gives access to 65% of Romanian forests with an amount of 32.500 km of forest roads, 7600 public roads that can be used in forestry practices too and 1450 roads from other institutions. The density of the road infrastructure is roughly 6.1 m/ha way below the European standard (Dragoi et al., 2015). In 2017 report made by the Ministry of Water and Forests, SFA administrates 26.439 km of forest roads stating that the main problem with forest roads infrastructure development is most definitely weather conditions and unexpected natural disturbances. The specified disturbances would make forest roads maintenance and establishment high costly. Interviewee 1 and 2 stated clearly that from a practical point of view, the sustainability of forests based on forest roads is at the very bottom and due to its scarcity, the economic-social-environmental status of a forest is plummeting considerably. Due to the fact that the allowable cut amount is established for the whole area regardless of accessibility, some areas are predisposed to over-exploitation during the fulfillment of the forest management plan. Nevertheless, more than 80% of the state forests are FSC certified which indirectly based on their requirements, should inevitably push forest infrastructure development towards a positive growth.

Performance judgement: Taking all indicator manifestations together, the State Forest Administration performance towards sustained forest stands can be defined as “2” or moderate. Despite the fact that forest management plans exist on the whole forested area according to the laws, the requirements for sustained forest stands is at question due to the lack of forest roads contributing to a decline in e.g. quality of the wood assortments.

#### **Criterion 4 Cost efficiency**

##### *I<sub>9</sub> Managerial accounting*

Managerial accounting can be defined as, in simple terms “management of costs”. Indirectly, financial audits give the basis for the existence of managerial accounting. It has been proven to be an accounting instruments which foresees and evaluates the activity of a certain entity and ultimately helping the internal decision-making process (Hategan et al., 2010). The net of the decision making is based on information collected from each unit inside the SFA and everything is used internally for the decision-making (Stevanov and Krott, 2013). It can be accounted that when managerial accounting is exercised, the top down budgetary method is frequently used (Ristea, 2005).

Due to the fact that the SFA has under administration state property, even though they are self-financed, they comply to the financial accounting which has no secrecy. An important fact to support this is that Profit and loss accounts are published on their website as it is part of complying to national regulations and moreover, reports are done towards its stakeholders, in this case, the state (Ristea, 2005). On the other pole, the managerial accounting has a secrecy factor towards it and it reports to nobody but to itself as an entity, internal information turns into factors of change.

State forest administration it is not known to exercise the managerial accounting even though Interviewee 10 stated otherwise with the specification that it is seen as a rather new concept not understood by many, therefore presumably accepted with reticence. Similar to Poland (Chudy et al., 2015), forest district managers do not have an economical background in order to understand the managerial accounting theory but the idea of inter-connectivity between department units on local and regional scale existed since forever as Interviewee 1-2-3 stated. Compared to Poland, in Romania, every Forest district has a person with economic background in their personnel, which strengthens the idea of “concept not understood by many”. SFA effort to promote the managerial accounting theory through the net of information is remarkable and justified since the budgeting method needs to shift towards activity based budgetary method, mainly because the market-competition has stiffened once with forest restitution occurrence.

#### *I-S<sub>10</sub> Technical productivity of work*

Regarding the State forests, harvested wood per employee (1000 m<sup>3</sup>/person) was determined for the year 2018 since the data was available in their annual report. Reference data for Poland was available on their official website in their annual report but for Serbia, no reliable data was found for 2018 therefore, data was taken from 2015 (Chudy et al, 2015). RNP Romsilva in 2018 has harvested 9.595.900 m<sup>3</sup> of wood. The number of employees in the State forests are 16825 and in the private sector ~21000 (ASFOR database). Thus, 0.25 (1000 m<sup>3</sup>/person) resulted compared to 0.85 in the case of Poland finds RNP ROMSILVA in the bottom-third (see tabel 7).

*Tabel 7. Harvest levels for employees in Romania, Poland and Serbia.*

2018 (2015*)		RNP ROMSILVA (ROMANIA)	Lasz Panstwowe (Poland)	Srbijasume* (Serbia)
Annual removals (1000 m <sup>3</sup> )		9595.9	42699	1282
Total numbers of employees (FTE)	Enterprises own employees	16825	~50000	3177
	Contractors	~21000		1200
	Total	~38000	~ 50000	4377
Removals per employee (1000 m <sup>3</sup> /person)		0.25	0.85	0.29

Legend: \* - year 2015 was taken as reference year towards comparison since data for 2018 was not available for Serbia. In the case of Serbia, it is assumed that the statistics hardly have changed 2015-2018 due to the low forested area (official website Srbijasume). In the case of Romania and Serbia, from 2015, the annual harvests remained relatively constant and the number of employees barely have changed. In order for the comparison to be performed, annual removals were divided to the total number of employees and compared between countries. When having all relative amounts for different state forest institutions, the highest and the lowest can be identified, deduced, result divided with three and added once and then twice to the lowest value, so that three intervals can be created. Together with the zero productivity, these intervals are accordingly transformed into the four classes: “3” – uppermost third,



“2” – middle third, “1” – bottom third and “0” – zero productivity. Institution gets assigned into one of them according to the relative value of its technical productivity of work;

**Performance judgement:** In case of cost efficiency, this can be judged as “1” or low. Managerial accounting seems to exist yet is not acknowledged by foresters, most of them not knowing the term but if explained, says it exists since forever. This is mainly due to Romania being an ex-soviet country where the belief still is “everybody has to survive; we all have to eat”. The productivity does not help, being at the bottom-third, ~50% of the state forest revenue going to employees’ payments.

## Criterion 5 Profits from forests

*I-S<sub>11</sub> Value of the annual operating profit per hectare.*

Is defined by the surplus of total operating revenue over the total operating costs, before tax. In the case of RNP ROMSILVA, the operating profit for 2014 was 23 797 476,21 EUR and the total forested area managed by the SFA was 3.217.017 ha. By dividing the operating profit to the forested area we get the operating profit per ha, which in the case of Romania is 8.64 EUR/ha. Chudy et. al, 2015 provided data for Serbia and Poland for the year 2014. The results were performed similarly to I-O11 which made it possible to compare the performance between the countries in relative terms. Based on these results, RNP ROMSILVA falls into middle-third in the year 2014 (Tabel 7).

If we take into account the development of the operating profit per ha of RNP ROMSILVA (Tabel 8), it can be definitely seen the massive difference between 2014-2015 and a constant growth from that time to present. This might be explained by the changes in legislation which by 2015, have focused on strengthening the forest authority and law enforcement by their body. Nevertheless, the values differ tremendously based on the forested areas managed by the SFA in cause and constant change of legislation, the issue of climate change forcing a management close to nature, promoting the non-market demand to a certain extent.

*Tabel 7. Operating profit per ha for Romania, Serbia and Poland*

Year 2017 (2014*)	State forest institution ( State forest administration)		
	RNP ROMSILVA (Romania)	Srbjiasume (Serbia)	Lasy Panstwowe (Poland)
Operating profit per ha (EUR**/ha)	22.09 (8.64*)	- (0.16*)	14.04(15.92*)

Legend: \* = data for the year 2014 was relevant for all 3 countries, therefore at the beginning, the judgement was made for the year 2014. Hardly can we assume that the value changed that much for 2017 in the case of Serbia based on their information on the official website. Thus, the relevance falls subsequently towards the year 2017 where RNP ROMSILVA is judged to be into the uppermost third. \*\* – the relative data is based on the ratio of annual operating profit and the total hectares of forest; from these values, the highest and the lowest can be identified, deduced, result divided with three and added once and then twice to the lowest value, so that three intervals can be created. Together with the zero profit, these intervals are accordingly transformed into the four classes: “3” – uppermost third, “2” – middle third, “1” – bottom third and “0” – zero profit. Institution gets assigned into one of them according to the relative value of its operating profit per ha; \*\* - conversion RON/PLZN to EU made through BCR (www.bcr.ro), data from Serbia was taken from Chudy et al, 2015.

*Tabel 8. Evolution of operating profit per ha*

Institution	RNP ROMSILVA				
Year	2014	2015	2016	2017	2018
Operating profit per ha (EUR/ha)	8.64	14.48	18.36	22.09	17.05

Performance judgement: Analyzing the indicator results, the State forest administration can be judged as being in the upper most third with 22.09 in 2017, which makes the performance “3” or high. Moreover, in 2018 it seems to increase and according to Interviewee 10 and 6, it will slightly decrease in 2019 due to many changes in the evaluation of wood assortments regulations which are focused towards ecological needs.

### **Criterion 6 Orientation toward new forest goods**

#### *I-S<sub>12</sub> Professional market information*

Even though RNP ROMSILVA is not a monopolist entity as Poland (Chudy et al, 2015), 80% of their revenues come from wood sales, no future incentives towards new sources of income can be seen in their annual reports. As mentioned in C1-O2, a commercial department exists since 2016 and due to being a new established department, it can be assumed that policies towards new forest goods might take time to be developed.

State forests are in 2018 more than 80% certified FSC which accounts as 2.471.053 ha from total forests managed by the SFA. Presumably, certification can be a new forest good since that started in Romania in the early 2013 based on Interviewee 10. Nevertheless, SFA provides extension services such as security or forest managing for almost 1.092.000 ha. On the same page, SFA does not give land solutions such as Coillte in Ireland but they expropriate land for national interests every year such as forest belts or other purposes.

Horse breeding can be accounted as a new forest good but in reality the budget allocated towards that is insignificant, being just for media image. Based on all the interviews, the horse breeding can be a high source of income due to its luxury status, not many people affording it.

It can be accounted that professional market information exists regarding wood sales, state forest administration being the entity that evaluate the wood assortments quality and sets the harvesting principles based on national laws. But, in the case of new forest goods, SFA situates themselves at the very beginning of the development therefore professional market information not being exercised to the possible extent.

#### *I-S<sub>13</sub> Investments into new forest goods.*

It is obvious that new forest goods are part of the political discourse similar in all previously tackled countries based on 3L Model. Based on the annual report, most of the investments falls towards forest roads, ~ 27.000.000 EUR, from which 12.000.000 E comes from own financial sources. Correlated to the annual income, the investment is quite low, not to mention investments into new forest goods which is inexistent. Regarding the horse breeding, 1.000.000 EUR has been invested into it, which can be accounted as insignificant too. Nevertheless, a tendency

towards investments in new forest good its seen but it is mainly due to pressure from the media and keeping the status quo.

Thus, analyzing the situation, forest roads seems to be considered as new forest goods and other land solutions are not considered. Investments are relatively low and it is considered that money are not invested towards the establishment or transformation of new or existing forest goods or extension services.

#### *I-S<sub>14</sub> New external partners*

The state forest administration through their Commercial department have bonded partnership with different institutions and organizations as mentioned in C1-O2. Most of the partnerships comes as a mean of raising awareness about forests and forest management through educational programs or conferences with ENGO's such as WWF or other institutions such as INCDS (Research institute). Some European partnerships exists too such as CAMARO-D or trans-national collaborations but they are not addressed towards new forest goods but non-tradeable goods. The partnerships are mainly addressed to environmental protection and global warming or climate change, aligning themselves to what society finds politically accepted and brings future funding or recognition. Thus, new external partners regarding new forest goods are barely observed.

Performance judgement: Even though external partners do exist, they are relatively very few in numbers and are used mainly as image improvement. Thus, the performance of state forest administration of the orientation toward new forest goods can be accounted as "0", not existent in practice.

### **Criterion 7 Speaker for forestry**

#### *I-S<sub>15</sub> Trustful cooperation with actors from the wood-based sectors*

Whether the state forest administration trustfully cooperates with actors from many different sectors or not was analyzed through a questionnaire (Annexes 4) adapted to the country characteristics, in this case, Romania. State forest personnel focused their choices regarding trustful cooperation with predominately state institutions such as Forest Guard, Ministry of water and forest, Ministry of environment etc. but also seems to accept a cooperation with publications regarding forestry; employee's syndicate which takes care of their interests and state institutions that focus on processing wood and construction. Based on the questionnaire results, a high percentage of forest personnel seems to trust the cooperation with different wood-based actors but the main institutions remain at the center. Thus, it can be interpreted that a trustful cooperation with actors from the wood-based sectors exists to a certain degree assigned a medium performance ("2"), the age class difference seems to make a difference somehow.

#### *I-S<sub>16</sub> Aspiration of a speaker's role*

As the questionnaires says, all the answers regarding this case were positive, therefore there is no doubt that State forest administration aspire towards being the voice in forestry, representing the sector's interest about reports, public debates, opinions and politics or media etc. The



performance of this indicator is “3”, the State forest administration aspiring towards the role of speaker in forestry.

#### *I-S<sub>17</sub> Acceptance of speaker's role*

Revealing if the state forest administration is accepted as a speaker or representative of the forest sector in Romania was a tricky job due to a high level of bias. When asked about if ROMSILVA is a speaker for all interests in forest, forest state personnel stated that is the only one that can have this role. Moreover, if actors outside the institutions were asked, they all admitted that it is a representative of interests in forest but they don't exercise their role in practice as they should. ENGO's, forest association representatives and actors from wood processing are not satisfied about ROMSILVA approach to legislation and laws implementation.

#### Performance judgement:

Thus, it can be said that State forest administration is accepted as speaker but they do not exercise their role as they should so, the performance of this indicator is “3” with the above mentioned notes. The overall performance judgement is that ROMSILVA has trustful cooperation with actors from the wood-based sector and they aspire to the speaker role, being accepted as such but criticized frequently.

### **Criterion 8 Mediator of all interests in forests**

#### *I-S<sub>18</sub> Trustful cooperation with actors from all different sectors*

Processing the questionnaires, it can be observed that age structure had an influence mainly through the fact that when the conflicts are overcome, older personnel focused on the same institutions that they previously chose, whereas relatively young, middle-aged personnel focused their choices around forest owners' associations and forest associations regarding wood processing and sales; employees' syndicates; law enforcement bodies and NGO's such as WWF, Greenpeace etc.; A surprising note is that a researcher from the Research Institute stated that it is pointless to say whom you should trust after a conflict is overcome due to the fact that everybody in Romania seems to have hidden interests. Ex-soviet preconceptions (Brukas, 2012,2015) seems to prevail even nowadays, lack of trust being still the most agonizing issue.

Nevertheless, the majority of forest personnel falls into the upper age structure, the youth percentage being quite low but increasing as different people mention. Based on the assessment and participatory processes that took place during the research, it is presumed that the performance of this indicator is “1”, which means trustful cooperation with actors from all different sectors does exist, with the up mentioned issues.

#### *I-S<sub>19</sub> Aspiration of a mediator's role*

As seen in past use of the 3-L Model, the State forest personnel stated that the SFA aspire to have a mediator role towards all interests in forests. On the other hand, the institutions/entities outside the forest sector or not related to state forests administration said that they aspire as well

towards the mediator role. Therefore, it can be judge that the institution performance is “1” due to the fact that it is not the only institution that aspire towards this role.

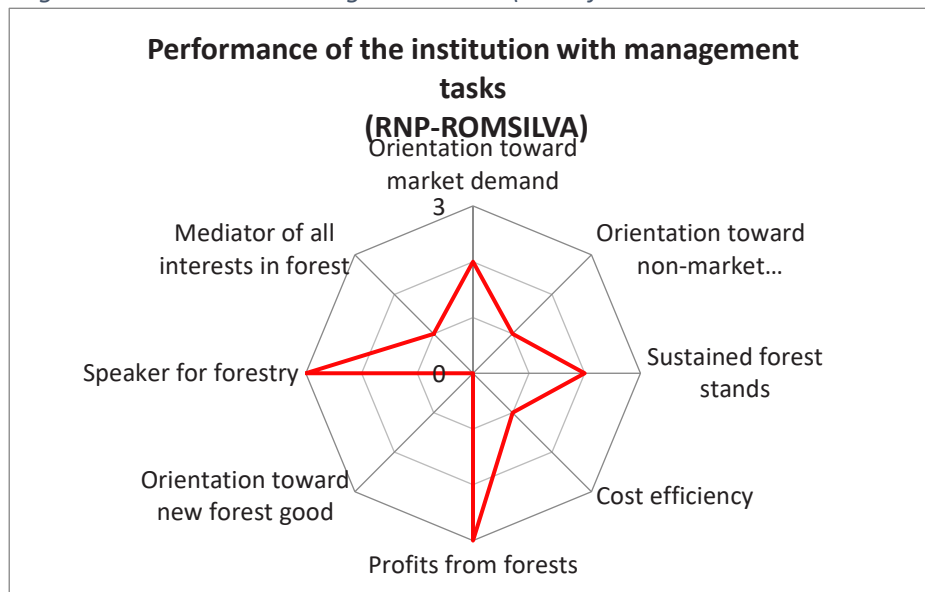
#### *I-S20 Acceptance as mediator of all interests in forest*

Even though the SFA aspire of being a mediator of all interests in forests, different sectors seem to have different opinions regarding the reality of it. Even actors from the wood-based sector have doubts towards it since they argued the practicability of it, stating that the prerequisites of being a mediator is to mediate first, which in reality does not happen and is made only in a declarative way as part of political discourse. Most of the actors in or outside the forest sector believes that a shared mediator role would be highly applicable and more reliable. Nevertheless, state forest administration is seen as a mediator at a regional/local scale. So, the performance of this indicator is judged to be “0”, which means that state forest administration is not accepted as having a mediator role due to difference between reality compared with statements based on false-hoods.

#### Performance judgement:

The judgement of the indicators combined is that trustful cooperation with actors from the all sectors doesn't not exists yet the institution aspire to it even though it's not accepted, overall performance being “1”. The state forest administration performance can be found in fig. 4 and the performances can be seen noted in the Annexes 2 too.

*Fig. 5 Institution with management tasks (State forest administration – RNP-*



### **3.2.2 State forest institution with authority tasks (Forest guards)**

The Ministry of water and forests has been created by HG 20/2017 with the responsibility of policy making in the domains of strategic planning, management of forest and game fund, management of water, hydrology and hydrogeology, protection, conservation and reconstruction of natural capital in the sectors of water and forests (art. 1 HG 20/2017). In the organizational and structure of the ministry, a secretariat regarding forest is established and through its body, the ministry exercises their authority towards the forest sector by the use of regional commissariats back in the time and nowadays, the Forest Guard.

Correlated to the forest sector, the Ministry of water and forest is the state forest authority, one of its main tasks among others is control, monitoring, implementation and inspection etc. Moreover, as mentioned before, through the National strategic plan 2018-2027 developed by the Ministry of water and forests, certain goals are involved from sustainable ecologic matters to economic strengthening and better communication between sectors.

Due to the necessity of a stronger legal bench-mark and strengthening the state authority performance based on their main tasks of implementation, monitoring and control and the exacerbating need to contribute to a greater extent against illegal activities in the forests, the Forest Guard is established through OUG 32/2015 (Emergency governmental order) and its fully financed from the state budget. The past mentioned commissariats are replaced by 9 Forest guards with approximately 1000 workers in their personnel which answers directly to the Ministry of water and forest, respectively through the secretary of state regarding forests. It exercises the state authority tasks in the field, more precisely assess if the obligation of the forest owner (with no regards to ownership) to respect and obey the forest regime, respectively the Forest code is respected and applied.

Thus, the authority tasks fulfillment by the Forest guards was conducted with the help of the 3-L Model. It is very important to mention that in this part, it is not judged the State forest authority itself but its impact in the field, more precisely in the private forests (e.g.: it is not looked how efficiently employees of the Forest Guards work, but how this institution influences the situation in the field when it comes to cost efficiency).

The performance evaluation for C1 to C6 is as followed: the indicators manifestation from e.g. Criterion 1, gives the performance of the forest authority in fulfillment of their tasks towards the private sector (e.g. weaker or “-“ in private forests); the indicators manifestation combined with the already evaluated performance (medium or “2”) of institution with management tasks (RNP-ROMSILVA) for the same criterion 1, gives a lower (“1) impact of the institution with authority tasks (Forest guards) on private forest sector regarding Orientation toward market demand. For C7 to C8, the performance of the institution with authority tasks, namely Forest Guards, is evaluated through the same Questionnaire as in the case of the institution with management tasks, namely RNP – ROMSILVA. For C7 and C8, it is looked for the fulfillment of the political role of representation and mediator of all interests in forests by the state forest institution with authority tasks.

## **Criterion 1. Orientation toward market demand**

### *I-A1 Freedom for harvesting*

The Forest code 46/2008 sets equal requirements towards the forest sector for private and state owners. In art. 10 is stated that regardless of ownership, the National Forest Fund ought to be administrated. Moreover, in art. 17, the regulation states that the forest regime, namely the Forest code must be respected and obeyed upon by no means, all forest owners and its requirements to establish, maintain and improve the all functions of the forest are ought to be respected. Art. 20 contributes to the equal rights among owners and states that the forest ought to be managed by a forest management plan and any operations or interventions in the forests are done according to it. Analyzing the situation with the help of the empirical data, the owner has the legal freedom to dispose of his/her property regardless of ownership with some special conditions. The trees have to be marked in order to be legally harvested in any case and if the owner has less than 10 ha, he can harvest them by himself but if he has more than 10 ha, a contractor has to perform the forest harvesting for him and he has to incorporate his forest into a state or private forest structure defined by the Forest code in order to get authorization.

Similar to Serbia, in the forest sector everything has to be done according to the forest management plan, every tree has to be marked by a licensed forester in order for it to be harvested. But the overall view based on laws and regulations is that the freedom for harvesting through owners' free will to dispose of his/her property is equal regardless of the ownership.

Thus, even though the regulations sets equal requirements, the forest authority performance on private forests regarding freedom for harvesting is “+/- “or same as in state forests but it must be noted that the forest law enforcement in the forest sector is believed to be severe in the case of private forest owners as some results from the participatory processes indirectly showed.

### *I-A2 Quality of information about markets*

Regarding the information panel towards market, as in the case of the C6 I-S12 of state forest administration performance, the information is given through the official website and announcements made by ROMSILVA and subsequently Ministry of water and forests regarding hunting derogations.

As a consequence of the restitution process mentioned earlier, the private owners are very defragmented and a balance between the amount of forested area owned differs a lot. In this context, the private owners in 2014 were distinguished by (1) 828.000 small owners and (2) big owners with around 2200 owners, the scale being (1) less than 10 ha and (2) more than 10 ha (Abrudan et al.,2015). Details about the market are available to private owners only if they are interested into those information as Interview I-20 mentioned.

All this having been said, information about the market place exists and are given through online means as mentioned before (SEAP – online wood selling or official ROMSILVA website). Despite the fact that information is set out on the website, there are certain details that are not mentioned in some cases which leads to incomplete documents, furthermore not valid contracts.

Taking this into account, information about the market is transparently portrait yet, in practice, loop-holes seems to exists. The level of bias towards this criterion is relatively high, therefore the judgement is that the performance of the state forest authority on private forests regarding this indicator is rather same (+/-) due to the fact that in legal terms, there are equal and transparent means of accessing the information.

#### Performance evaluation:

Therefore, indicators manifestation combined gives “+/- “or the same and together with the state forest administration task performance “2” gives a judgement value of moderate (2), which means state forest authority exercises same impact in terms of encouraging private forest sector orientation toward market demand.

### **Criterion 2 Orientation toward non-market demand**

#### *I-A3 Restriction on use*

Based on the annual report on 2017 of the Ministry of water and forest, the state manages over 68% of protection and protective area including NATURA 2000 or different sites with the same status. Many documents and available online media confirms the results of the up mentioned report, strengthening the idea that the predisposition towards over exploitation in private forests is a reality.

Nevertheless, no exact data can be associated with private forests but drawing a short assessment based also on the fact that 53% of Romanian forests are under Functional group I, II (GF I, II) and that private forest owner's shares regarding protection forests administration is no more than 50%, it can be interpreted as indicative of lower or “- “impact over private property by the forest authority.

To this matter, the on field empirical data assessment based on interviews showed that the compensation for private owners on economic loss due to assigning a protection status to their forests does not exists in practical terms.

#### *I-A4 Exercised control*

Even though in the private forest sector the amount or share of forests set towards protection purposes is not quite put out to the public, it is known to be lower than in state forest sector. This have been said, the Forest guard is empowered to enforce the law implementation and control regardless of ownership. Normally, there is 1 forest inspector/~2000 ha (Law 75/2002) and the private forest sector is known to have over 3.4 mil. ha (INS, 2017) and a forest guard exercise their power for the whole area regardless of ownership. Based on that, the exercised control is equal for both ownerships even though the amount of forest owned differs. Scholars have argued in the interviews that the number of total inspectors (~700) per total forested area of Romania ~7 mil. ha is not practically possible, yet this argument is not the object of this paper.

Based on the facts mentioned before, it can be attributed same (+/-) impact performance in the case of this indicator, mainly due to the control being exercised equal in both cases state and private even though the amount of protective/protection areas differ.

### Performance evaluation:

Combining the manifestation of these two indicators within the matrix, by combining the “lower” restriction on use and “medium” exercised control, one gets “-” minus as a result, which means that performance of the private property is lower. Furthermore, taking into account the performance judged (1) for the state forest institution with management tasks regarding this criterion, by combining both of them, it can be said that the authority’s impact of forest authority on private forest sector is “0” zero or very low regarding orientation toward non-market demand.

### **Criterion 3 Sustained forest stands**

#### *I-A5 Coverage by forest management plans*

As mentioned before, based on the Forest code 46/2008, no forest operations can be performed without a management plan. As a consequence, all state forests have a forest management plan. In the case of private forests, no actual data towards this detail was found but based on Abrudan et al., 2015, 828.000 out of roughly 850.000 owners have less than 10 ha which means that they do not actually require a forest management plan, the Forest code stating clearly that owners which have less than 10 ha do not require one. As a note to this, even though they do not require a forest management plan, they can still harvest 5 m<sup>3</sup>/ha/year but they require a contract with a forest directorate to get a specialist and mark the trees (Forest code, 2008)

Analyzing these facts, it can be accounted that the state authority has lower or “-” “impact over the private forest sector regarding coverage by forest management plans, mainly explained by the scattering and defragmentation of small holdings, problem stretched too by Bouriaud ,2002.

#### *I-A6 Biological investments*

Money invested into reforestation, tending of you forest stands and all other works foresters consider necessary to sustain forest stands in the state forests were presented as being roughly 27.000 EUR (ROMSILVA, 2018) whereas in the private state forests data were unavailable or unclear. Nevertheless, ROMSILVA performed extension services towards this matter for private owners and an amount of 3.000 EUR were invested. Thus, the private owners share of forests is far bigger than what ROMSILVA did for a certain group of private forest owners.

In the period 2000-2009, from the state budget was allocated 8.274 mil EUR towards this matter yet due to lack of information providing to private owners and bureaucracy, the incentives towards this situation were not spent (Court of accounts, 2014). It must be noted that forests in Romania are mainly based on natural regeneration but this indicator cannot be judged based on this fact known among foresters.

It can be concluded that state forests invest more money into creating and maintaining new or young forests but the data scarcity towards private sector seems to be a constant issue. Thus, the results based on forester’s views and reports indicated that biological investments in the private forest are lower (-).



#### Performance judgement:

By combining the manifestation of the two indicators within a matrix, as a result gets “- “which means that state forest authority performance on the private property is lower. Furthermore, taking into account the manifestation of state forest institution with management task performance (2) towards this criterion, you can classify forest authority impact as “1”, state forest authority exercising weak impact on the private sector regarding sustained forest stands.

#### **Criterion 4 Cost efficiency**

##### *I-A7 Technical productivity of work*

This matter is tackled through the amount of cubic meters produced per employee or ha but this not always reflect the actual performance on the field. In 2017, in the private sector were harvested ~7.6 mil. m<sup>3</sup> and the amount of employees as mentioned in C4 of the state performance, was roughly 32.000. This number accounts of private companies that performs forest harvesting which in fact they might be forest owners as well (INS, 2017). The amount of private forest owners was estimated as being around 850.000 (I-A5) which indicates clearly the m<sup>3</sup>/employee is low but it must be considered that more than 830.000 are small private owners (Abrudan et al., 2015).

This situation combined with expert’s views towards this indicator is stressed through the big difference between private owners share of forests but even so, the state forests being more compacted and unified as a whole exceeds the technical productivity of work in the case of forest sector. Due to lack of actual data and scattered private forest owners, the performance of the state forest authority regarding this indicator is considered lower or “- “in the case of private forests.

##### *I-A8 Accessibility of forests*

The accessibility of forests in Romania is a very sensitive subject from which one can assume whether the management of forests as a resource is efficient. As mentioned in I-S8, the average forest road is ~6.1 m/ha for the whole Romania from which it can be draw a supposition that forest road infrastructure is underdeveloped in the whole country. Nevertheless, based on expert’s view, private forests are having a better forest road infrastructure due to the main reason of economics. For a private forest district of ~14.000 ha, the forest road infrastructure is noted as an average of 7.51 m/ha, ranging from 3.05-14.00m/ha (RPLP Kronstandt, 2019) and this is the case in most of private forest owners which have a higher share of forested area.

Shortly said, in the view of others and scholars, the private sector has a higher productivity as seen in RPLP Kronstandt due to economic reasons. As a comparison with the state forests, private forest sector is much less focused onto the ecological functions of forest, keeping it at the minimum required level whereas ROMSILVA has to combine all the functions to a greater extent to satisfy the stakeholders, in this case, Romanians. Thus, the performance of this indicator can be interpreted as low or “- “in the private forest sector.



### Performance judgement

Combining the indicators manifestation, gets a “-“, the authority exercising lower control on private forests. Combining the manifestation of indicators “-“ with the state forest institution with management tasks performance weak or “1”, results “0” which means that the impact of state forest authority on private forest sector regarding cost efficiency is zero or very weak.

### **Criterion 5 Profit from forests**

#### *I-A9 Profits*

Profits from forest specifically means the surplus of total revenue over the total cost. Yet, in the case of private forest sector, official data does not actually exist. An unofficial report made by the Council of Competitiveness in 2015 stated that on the period 2013-2015, the profit from the forest sector and the processing industry accounted as 190 mil. EUR in total, from which, silvicultural operations and forest maintenance was roughly 50 mil EUR (Consiliul concurentei, 2015). The evolution is seen as increasing from 2013-2015 by 1.6 therefore it can be assumed that the profit of the private forest sector is same as state forests due to the fact that the state forest profit in 2018 was around 54 mil. EUR (ROMSILVA, 2018). The fact that the private forest sector accounts as ~51% of total forested area in Romania, the profit is explainable even though the share of small forest owners is high. According to experts in the private forest sector, a private forest district of average 15.000 ha, makes a profit of approximately 1.000.000 EUR per year which sort of backs up the report made by Council of Competitiveness and the fact that the quality of the forest resource brings more economic benefits seems to be exercised(I-11).

The situation mentioned above are confirmed by the experts and scholars' expertise, ROMSILVA being dominant with a market grade of more than 50% but not having the monopoly in the forest sector as it is seen in the case of the Forest enterprise in Poland (Chudy et al., 2015).

### Performance judgement:

The indicator manifestation can be accounted as same (+/-) or the same. Combining the performance of the state forest administration towards profits from forests (3) with the manifestation from state forest authority towards private sector (+/-), it can be judged that the impact of the forest authority on Profits is strong (“3”). Both private and state forest sector have a relatively close profit value because they mainly manage forests (silvicultural operations and maintenance) but they don't harvest it themselves.

### **Criterion 6 Orientation toward new forest goods.**

#### *I-A10 Investments into new forest goods*

In order to start developing one or more new forest goods, investments are needed. Yet, in the Romanian forest sector, especially in the private sector, investments or incentives toward this case is not significant. To this regard, investments into certification has been made by most of the private owners which have a high share of forested area. This fact can be seen as a new forest good since the market pushed forest owners to certify in order to sell their wood products at a

premium price. In practice, this premium price is rather insignificant compared to normal prices but the certification is a must if you want to sell your goods (I-3; I-23; I-4).

The amount of money invested into certification is not quite known but at the end of 2002, 717.000 ha of forests state and private owned were certified and more than 2 mil ha were on the process of certification (Halalisan et al.,2013). In the case of State forest administration, more than 80% of their forests are certified (ROMSILVA, 2018) and they are looking forward to certify all the state forests. Experts opinion showed that towards establishment or renewal of new forest goods neither state nor private forest owners have tendencies in this aspect but it is admitted that state forests have more protection/protective forests under its administration, therefore it may be assumed that the impact performance of the state forest authority towards investments into new forest goods is lower or “- “in private forests than state forests.

#### *I-A11 Revenue from new forest goods*

The lack of investments and incentives to this matter, clearly shows a low revenue coming from this case. If we take into consideration forest certification, the surplus amount which comes from the premium price as mentioned in I-A10 is insignificant to the extent of Romanian forest sector. Thus, it can be accounted that the performance of the state forest authority with regard to revenue from new forest goods is lower or “- “in the private sector than in the state sector mainly due to economic reasons, no compensation or incentives are practically given to private forest owners for new developments.

#### Performance evaluation:

Thus, combining the manifestations of the two indicators within the matrix, the “lower” revenue from investments into new forest goods and the “lower” investments into new forest goods, gives “- “or weak performance of the forest authority on the private sector. Moreover, the “0” performance of the state forest administration of this criterion, analyzed together with the “lower” performance on the private sector, means that the forest authority has very low “0” or zero impact regarding orientation toward new forest goods on both sectors

### **Criterion 7 Speaker for forestry**

#### *I-A12 Trustful cooperation with actors from the wood-based sector*

Regarding the forest authority policy towards the inter-sectoral coordination, the use of questionnaire combined with forest personnel from both state and private owned forests provided a more reliable analyzes. Thus, the state authority showed interests in cooperation with state institutions ranging from forestry sector and research to agriculture and environment/nature protection. Moreover, forest associations were chosen together with universities and publications. The users of forests and its products are directly and indirectly affected by the Ministry through its regulations and they stated that a better inter-sectoral coordination should be a real objective in the future. Based on the facts and values showed above, the performance of state forest authority is seen as “2” or moderate regarding trustful cooperation with actors from the wood-based sectors since the water management is highly correlated with forestry.

#### *I-A13 Aspiration of a speaker role*

As in the case of state forest administration, the state authority aspires to the speaker role yet it is seen as such only on national level as I-2 stated. On a regional scale, the state forest administration is seen as having this role. Thus, it can be judged that the state authority aspires to the speaker role “1” yet in practical terms, is rarely seen as such.

#### *I-A14 Acceptance of a speaker's role*

As mentioned in I-A14, the state authority aspires to such role yet it is only accepted at a higher scale, being the legislative hand in Romanian forests with the highest power of decision-making. No certain research paper tackle this issue specifically therefore the indicator is judged as being “1” or low, not accepted with regards to regional levels.

#### Performance judgement:

Combining the indicators manifestation of this criterion, shows that trustful cooperation exists to a certain degree and state authority aspires to it yet is not accepted on the regional level, grading the criterion as weak or “1”.

### **Criterion 8 Mediator of all interests in forests**

#### *I-A15 Trustful cooperation with actors from all sectors*

Similar to I-A12, cooperation with actors from all sectors exists through having interests in cooperation with sectors as agriculture (ecological reconstructions) or publications through raising awareness but it can clearly be seen that the most preferred sectors are environmental, water and forests institutions. Drawing a conclusion based on these facts, indirectly says that the state authority would not trust in future collaboration the outside institution chosen before. As a result, the performance of this indicator is judged as “0” which means it does not exist.

#### *I-A16 Aspiration of a mediator's role*

Similarities with the state forest administration persists here too, state authority aspiring to the mediator's role on all levels yet it is seen only on the national scale. Hardly was any person interviewed of the believe that the state authority would interfere at a regional/local level if no illegalities are performed. They mostly interfere when complaints are made and they act with the use of their sub-ordinate, Forest guard. Thus, the performance of this indicator is “1”, mainly due to the fact that they aspire to that role.

#### *I-A17 Acceptance of a mediator's role*

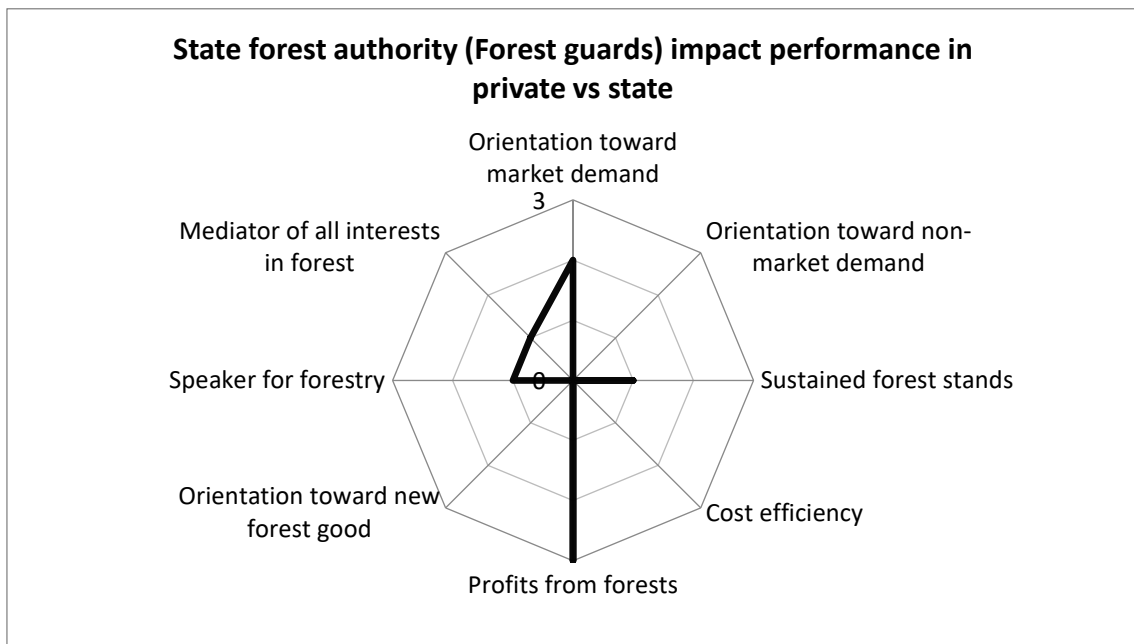
The state authority is accepted as a mediator in big conflicts or situation such as illegal harvesting, misuse of funds or illegal hunting. Its acceptance falls towards the medium performance “2”, complementing indirectly the Forest guard and state forest administration at the regional/local scale.

### Performance judgement

Combining the indicators manifestation regarding this criterion gives weak “1” performance which means that trustful cooperation with actors from all sectors do not actually exists even though they aspire to the mediator role, being really accepted only on national scale level.

In the below spider net (Figure 5) is presented the impact performance (see also Annexes 3) of the state forest authority towards the private vs. state with a mention that “3” is the highest performance and “0” lowest.

*Fig. 5 State forest authority performance*



## **4. Discussion and recommendations**

### **4.1 Discussion**

The empirical evidence comprised of various documents, structured and semi-structured interviews have made possible the findings of what (formal) goals have led the state forest institutions until now and to what extent the main Romanian forest institutions fulfill their tasks described in the forest policy programs. Based on this fact, recommendations towards improvement of their performance will be suggested.

#### *Multiple use of forests*

In the case of Romanian forest sector, the multifunctional and close-to-nature forestry with paying high attention to high economic value is very much presented in the forest law. From the policy programs (goals) that the 3L Model presents in the 1<sup>st</sup> Layer: satisfying user needs on

forest goods and services, sustaining forest capacity for perpetual wood yield and strengthening economic performance prevails in almost every political forest law of the country. The policy program inter/cross sectoral coordination have hardly received any attention in the forest laws, being mostly introduced in the national forest programs which are politically weaker than forest laws (Krott and Stevanov, 2018). This indicates that coordination between forest-related sectors have been set aside and presents a real challenge for the Romanian forestry in the future.

#### *Sustained forests and economic performance as implementation priorities in state forests*

In the state forest sector, the implementation of policy goals indicates a medium focus towards sustained forest stands with its main characteristics e.g. non-declining forest area etc., and medium economic performance, mainly through high profits but weak cost efficiency with its relevant correlation toward market orientation, seen as medium too. Even though the Romanian forests are known to be sustainably managed and the coverage of forest management plan is substantial on almost all forested area, the lack of forest road infrastructure pulls the sustainability, functionality and efficiency of forests down. Moreover, satisfying user needs outside the market (non-market demand) is neglected considerably, showing that the focus is on tradable goods rather than public goods (recreation role of the forests etc.).

#### *Forest authority impact on private forests*

As it is usually known, the state forest authorities have the sustained forest as a main goal, yet their impact onto private forests is low, showing a weak success into its implementation. This situation can be influenced by a high number of small private owners ~828.000 which have less than 10 hectares of forest land, private forests share being approx. 3.4 million hectares with 2.200 owners having more than 10 hectares, covering 2.5 million hectares (Abrudan et. al, 2015). This situation comes as a result of the restitution process and the management of small-scale private forests is not always sustainable. The impact on orientation toward market demand by the authorities is same in private forest as in state forests which comes as a correlation with the same high profits in both cases, which brings market competition as the biggest challenge now and in the future, something that the state forests never faced before.

#### *Political role of the state institutions*

In both cases, the institution with management tasks (ROMSILVA) and the institution with authority tasks (Forest Guard) aspire for the speaker and mediator role in forestry yet neither one is accepted or recognized as such by the other actors in and outside the forest sector. Some of the respondents did not even want to express their choices due to “trust issues” when asked “Why?”. This indicates most definitely that the political role is weak since none of them are recognized as representatives. What have been observed is that the state forest administration (ROMSILVA) is local and regionally seen as representatives whilst, the forest authority is acknowledge only on a national scale related-issues. It can be argued that the institutions compensate each other when conflicts appear on regional and national level. Chudy et. al, 2016 showed that by alternating the political role the performance of both institutions would increase, together with the general population trust in the forest sector.

## 4.2 Recommendations towards improvements

### *Sustained forest stands improvement*

Even though this priority goal prevails in the forest policy theatre, in practice it scores medium performance, not being substantially applied on the whole area. In the state forests, the sustained forest stands through the sustainability concept is very much argued, mainly due to the lack of forest roads which it is believed negatively affect the forest sector in general. It has been assumed that certain areas are over-exploited yet there is no certain evidence for that, the only fact is that the annual possibility is established for the forested area as a whole, even though a high percentage of it lacks accessibility. Same goes for privately owned forests where the forest authority is facing even bigger challenges to fulfil this goal, findings of Bouriaud (2002) showed more than 80% of the forest owners are afraid of theft and stress that a better monitoring system is needed. Correlated to the same situation, Aburdan et al. (2015) urged too for a better monitoring system of the forests mainly due to big issues that surfaced from the restitution process. All this showed that the private forest owners are focused more on production, rather than a combination between production-protection forests. Thus, sustained forest stands it's a complex goal which requires reinventing of forest policies to answer the all forest users need.

### *Increasing the marketable and non-marketable goods and services*

Based on the results, both marketable and non-marketable goods and services can be improved by innovative technical solutions, modernizing the forest harvesting principles as well as increasing the forest road infrastructure. By combining the multiple use of the forest and adapting the forest laws and norms to the actual need of the forest sector, an efficient and productive use of all forest products can be accomplished. Even though it's not quite sure defined, the forest-related bio-economy (Pelli et. al, 2017) should be researched, mainly because Romania provides multiple forest services. Both state and public forests did not show any incentives towards innovation or novelty in forest products, thus they should develop this branch and diversify their capital. By a diversified financial revenue coming from different sources, other forest services would increase such as recreation or protection forests.

### *Strengthening the forest authority performance*

The forest authority impact onto the private and state forest sector regarding efficiency and productivity can be increased through a restructuring of the state authority. From a total of ~ 700 inspector's positions in the Forest Guard, fewer than 400 are filled in and to 1 inspector is assigned ~20.000 hectares to survey. Taking into account that Romanian forests have 7.000.000 hectares of forests and the Forest Guard exercises its role on the entire forested area, it seems practically unachievable to control the whole forested area. Thus, a better monitoring system, forest road infrastructure development, and restructuring of the forest authority institution through relevant future policy would increase the efficiency and productivity of the private and forest sectors.

### *Shared political role*

All the state forest institutions examined before showed the willingness to play the role of a speaker in forestry and be accepted as such, even though none of them is officially recognized. The state forest administration, ROMSILVA seems to be acknowledged by forest personnel as a speaker yet only on the regional and local level whilst if a national wide issue comes, the state forest authority is recognized as such. It can be accounted that the political role is informally shared, yet both of them aspire for it. The private forest sector must consolidate their associations and lobby for their interests and rights, since their power in the forest sector shifted due to the restitution process. The private owners need to be involved in the access of European funding and restructuring of the regulatory framework, as well as better communication innovation.

## **5. Comparison with the 3L Model-based assessments in other countries**

This research was focused on the performance assessment of state forest institutions and their implementation of public goals by the 3L Model developed by Stevanov and Krott, (2008). The comprehensive C&I approach resulting from the 3L Model was applied, different from partial assessments such as economic (Machedon, 2007) and other approaches. The eight theory-based criteria from 3L Model helped to judge the complex tasks of state forest institutions in a simpler way. Moreover, similar results with Western Balkan countries from Stevanov and Krott, 2019 and Poland Chudy et. al, 2016 are seen.

High profits but lower efficiency and productivity have resulted in the countries mentioned above as well as lack of innovation into the over-all forest sector. State forest institutions in all countries have medium performance towards sustained forest stands and inter-sectoral coordination being mentioned more in national strategies rather than forest laws. In neither country the political role is completely accepted yet all the institutions aspire for it. An urgent need to reinvent the forest policies is a common future strategy towards improvement. Countries with high shares of state forests showed that the state forest administration performed much better than private forests, the forest authority exercising a lower degree their role of control and support in the private forest, as it can be seen in Romania too.

The applicability of the 3L Model in the case of Romania shows good success, resembling to a certain extent the reality. Even though the strength of the C&I approach lies in its adaptability (Krott and Stevanov, 2019), the indicators didn't have to be changed and it suited the Romanian forest situation, the indicators giving an appropriate evaluation without going deeper into the details.

The cross-linkages between indicators and the use of contextual analysis provided a more reliable evaluation reducing the bias and subjectivity. The fact stressed by Chudy et al, (2016) that the performance of the authority tasks in private forests is lower or equal than state forests in



every criterion assessed, shows a resemblance of post-communist's countries (Stevanov and Krott, 2013) as in the case of Romania. This might be explained by the restitution process results and its consequences on the state forest administration, which now threatens their market dominance, increasing market competitiveness between state forest administration (Romsilva) and private forest sector.

As a final remark, the data scarcity in the case of private forests gave difficulties in assessment, whereas data about the state forest administration was quite reachable and reliable with some minor set-backs. Even though this research provides a good and quite reliable overview of the Romanian forest sector, a future and detailed research towards the policy goals fulfillment by the state forest authority in the case of private sector would benefit the Romania forestry.

# Annexes

## Annexes 1.

<b>Annexes 1. Tasks of state forest institutions in ROMANIA</b>				
<b>TASKS</b>	<b>INSTITUTIONS</b>			
	<b>State forest administration RNP - ROMSILVA</b>	<b>Ministry of water and forests, Forest guards – law implementation body in the field</b>	<b>INCDS (Forest management planning)</b>	<b>Private entities ( have to be licensed by the state authority – Ministry, in order to operate )</b>
Forest-policy formulation (engagement in designing forest policy, forest law, orders, decrees or other mandatory and/or voluntary prescriptions other than law)		+++		
Law implementation (enforcement of forest law, implementation control)	+	++		
Information providing (extension services - advising non-public forest owners; public reporting about forests)	++	+	+	
Economic support				
Financial support (incentives, compensations, investment credits)	+	+		
Technical support (conducting operations in the non-state forests, extension excluded)	+			
Planning				
State-wide level			+	
Regional level planning			+	
Local level			+	+
Enterprise level				
Representing the owner (Setting the goals; Making decisions on concessions if some; etc.)	++		+	+
Management of state assets (Management of real estates, land other than forest)	+++	( Gives only opinions)		
Management of forests				
Producing wood products	++			
Producing non-wood products and providing services	+			
Wood processing (please specify – e.g. sawmilling, etc.)	+			
Processing of non-wood goods (please specify, e.g. water production)	++			

(+) the task is legally based, (++) the task is legally based and has high priority, (+++) the task is legally based, high priority and the institution is the only one fulfilling it.

## Annexes 2

<b>Annexes 2. Performance of state forest institution with management tasks: RNP ROMSILVA ( source: Chudy et al, 2015 based on Stevanov and Krott, 2013, modified)</b>			
<b>Criterion (C)</b>	<b>Performance scale</b>	<b>Combination of indicators within a matrix</b>	<b>Performance</b>
<b>C1: Orientation toward market demand</b>	3	Market revenue substantial <sup>a</sup> AND professional marketing competence exists	2
	2	Market revenue substantial AND professional marketing does not exists	
	1	Market revenue not substantial AND professional marketing exists	
	0	Market revenue not substantial AND professional marketing does not exists	
<b>C2: Orientation toward non-market demand</b>	3	Plans for production/provision of public/merit goods exist AND financial inflow for public/merit goods production/provision substantial <sup>b</sup> AND auditing exists	1
	2	Plans for production/provision of public/merit goods exist AND financial inflow for public/merit goods production/provision substantial and no auditing	
	1	All other combinations	
	0	No plans for production/provision of public/merit goods AND financial inflow for public/merit good production/provision not substantial AND auditing “exists OR not”	
<b>C3: Sustained forest stands</b>	3	“Obligation for sustaining forest stands exist” AND “forest management plans exist for the substantial forest <sup>c</sup> part” AND “sustained forest stand requirements fulfilled on the whole area”	2
	2	“Obligation for sustaining forest stands exist” AND “forest management plans exist for the substantial forest part” AND “sustained forest stand requirements fulfilled on the greater area”	
	1	All other combinations	
	0	“Obligation for sustaining forest stands does not exist” AND “forest management plans does not exist for the substantial forest part” AND “sustained forest stand requirements are not fulfilled on the whole OR greater Or lesser area OR not fulfilled”	
<b>C4: Cost efficiency</b>	3	Managerial accounting exists AND technical productivity of work in the uppermost third <sup>d</sup>	1
	2	Managerial accounting exists AND technical productivity of work in the middle third OR Absence of managerial accounting AND technical productivity of work in the middle third	
	1	“Managerial accounting exists OR not” AND technical productivity of work in the bottom third <sup>d</sup> OR Absence of managerial accounting exists OR not AND technical productivity of work in the middle third	
	0	Presence OR absence of managerial accounting AND zero productivity	
<b>C5: Profit from forests</b>	3	Value of the annual operating profit per hectare is in the uppermost third <sup>e</sup>	3
	2	Value of the annual operating profit per hectare is in the middle third <sup>e</sup>	
	1	Value of the annual operating profit per hectare is in the bottom third <sup>e</sup>	
	0	No profit (zero or loss)	
<b>C6: Orientation toward new forest goods</b>	3	Existence of professional market information AND investments into new forest goods substantial <sup>f</sup> AND new external partner exists	0
	2	All other combinations	
	1	Existence of professional market information AND no substantial investments into new forest goods AND no new external partners OR Absence of professional market information AND no substantial investments into new forest goods AND new external partners exist OR Absence of professional market information AND investments into new 2forest goods substantial AND no new external partners	
	0	Absence of professional market information AND no substantial investments into new forest goods AND no new external partners	
<b>C7: Speaker for forestry</b>	3	Trustful cooperation with actors from the wood-based sector AND speaker’s role aspired AND speaker’s role accepted	3

	2	Trustful cooperation with actors from the wood-based sector AND speaker's role not aspired AND speaker's role accepted	
	1	Trustful cooperation with actors from the wood-based sector AND speaker's role aspired AND speaker's role not accepted	
	0	Trustful cooperation with actors from wood-based sectors AND speaker's role not accepted	
<b>C8: Mediator of all interests in forests</b>	3	Trustful cooperation with actors from different sectors AND mediator's role aspired AND mediator's role accepted	1
	2	Trustful cooperation with actors from different sectors AND mediator's role not aspired AND mediator's role accepted	
	1	Trustful cooperation with actors from different sectors AND mediator's role aspired AND mediator's role not accepted	
	0	Trustful cooperation with actors from different sectors AND mediator's role not aspired AND mediator's role not accepted	

**Legend:** 0 – zero; 1- weak performance; 2- moderate; 3- strong; **a** – substantial revenue, when from the total revenue of state forest institution  $\geq 70\%$  comes from selling goods and services on the market; **b** - inflow is considered substantial when  $\geq 30\%$  of total revenue flows in (from outside the institution) for public/merit good production/provision; **c** – substantial forest part means more than  $2/3$  of the total forest area under the management of state forest institution; **d** – when having all relative amounts for different state forest institutions the highest and the lowest can be identified, deduced, result divided with three and added once and then twice to the lowest value, so that three intervals can be created. Together with the zero productivity, these intervals are accordingly transformed into the four classes: “3” – uppermost third, “2” – middle third, “1” – bottom third and “0” – zero productivity. Institution gets assigned into one of them according to the relative value of its technical productivity of work; **e** – the same method as d., intervals are created and together with the loss (which means zero or negative financial result) these intervals are transformed into the 3 – uppermost third, 2 – middle third, 1 – bottom third and 0 – no profit; **f** – substantial, making  $1/3$  of all investments or more.

### Annexes 3

Annexes. 3																		
Performance of state forest institution with authority tasks: Ministry of water and forest (source: Chudy et al, 2015 based on Stevanov and Krott, 2013, adapted to the particular case of Romania)																		
Criterion (C)	Performance scale	Combination of indicators within a matrix				Matrix result	Performance											
C1: Orientation toward market demand	3	Private vs. state forest - Indicators		I : Quality of information about markets			+/-	2										
	HigherSameLower																	
				I : Freedom for harvesting	Higher	+			+	+								
	Same	+	±		-													
0	Lower	+	-		-													
C2: Orientation toward non-market demand	3	I : Restriction on use		I : Exercised control			-	0										
	2								Higher	+	+	+						
	1								Same	+	±	-						
	0	Lower	+	-	-													
		I : Coverage by forest		I : Biological investments					-	1								
											Higher	+	+	+				
	Same										+	±	-					
1	Lower	+	-	-														
C3: Sustained forest stands	3	I : Accessibility of forests		I : Profits			-	0										
	2								Higher	+	+	+						
	1								Same	+	±	-						
	0	Lower	+	-	-													
C4:Cost efficiency	3	I : Revenue from new forest goods		I : Freedom for harvesting			+/-	3										
	2								Higher	+	+	+						
	1								Same	+	±	-						
	0	Lower	+	-	-													
C5: Profit from forests	3	I : Investment into new forest goods		I : Revenue from new forest goods			-	0										
	2								Higher	+	+	+						
	1								Same	+	±	-						
	0	Lower	+	-	-													
C6: Orientation toward new forest goods	3	Trustful cooperation with actors from the wood-based sector AND speaker's role aspired AND speaker's role accepted					/	1										
	2								Trustful cooperation with actors from the wood-based sector AND speaker's role not aspired AND speaker's role accepted									
	1													Trustful cooperation with actors from the wood-based sector AND speaker's role aspired AND speaker's role not accepted				
	0																	
C7: Speaker for forestry	3	Trustful cooperation with actors from different sectors AND mediator's role aspired AND mediator's role accepted					/	1										
	2								Trustful cooperation with actors from different sectors AND mediator's role not aspired AND mediator's role accepted									
	1													Trustful cooperation with actors from different sectors AND mediator's role aspired AND mediator's role not accepted				
	0																	
C8: Mediator of all interests' in forests	3	Trustful cooperation with actors from different sectors AND mediator's role aspired AND mediator's role accepted					/	1										
	2								Trustful cooperation with actors from different sectors AND mediator's role not aspired AND mediator's role accepted									
	1													Trustful cooperation with actors from different sectors AND mediator's role aspired AND mediator's role not accepted				
	0																	

## Annexes 4 (adapted from Krott and Stevanov, 2008)

### Questionnaire

1. With which institutions and actors from the below list your institution has trustful cooperation?

Nr.	Institutions, actors	Trustful cooperation
		Yes or No
1	Other departments from the SFA ROMSILVA (Fond forestier; Regenerare si dezvoltare, Economic; Comercial)	<input type="checkbox"/> YES <input type="checkbox"/> NO
2	Other institutions related to forestry ( Ministerul Apelor si Padurilor; Ministerul Mediului; INCDS (ICAS); IFN; Garda Forestiera; Garda Nationala de Mediu etc.)	<input type="checkbox"/> YES <input type="checkbox"/> NO
3	Agriculture companies ( AgriCOST; AgriCOVER; Alcedo etc.)	<input type="checkbox"/> YES <input type="checkbox"/> NO
4	Hunting publications ( AGVPS; Revista Vanatorul si Pescarul Roman; Progresul silvic etc.)	<input type="checkbox"/> YES <input type="checkbox"/> NO
5	Local fishermen	<input type="checkbox"/> YES <input type="checkbox"/> NO
6	Regional, inter-regionale wood buyers	<input type="checkbox"/> YES <input type="checkbox"/> NO
7	Local forest owners	<input type="checkbox"/> YES <input type="checkbox"/> NO
8	Tourism companies (Christian tour, EXIMTOUR etc.)	<input type="checkbox"/> YES <input type="checkbox"/> NO
9	European union	<input type="checkbox"/> YES <input type="checkbox"/> NO
10	Forestry related publications ( Revista padurilor; Progresul silvic etc.)	<input type="checkbox"/> YES <input type="checkbox"/> NO
11	State institutions or parts of the institution (e.g. ministry department) that are responsible for hunting (Biroul cinegetica si Salmonicultura)	<input type="checkbox"/> YES <input type="checkbox"/> NO
12	Associations concerned with environment and/or nature protection ( Agent GREEN; WWF Romania; Greenpeace Romania; Greeninitiative etc. )	<input type="checkbox"/> YES <input type="checkbox"/> NO
13	Local farmers	<input type="checkbox"/> YES <input type="checkbox"/> NO
14	Publications regarding farming ( Revista fermierului, Agrimedia etc. )	<input type="checkbox"/> YES <input type="checkbox"/> NO
15	Associations from the forest sector (forest owner associations excluded)ex: Fundatia Terra Mileniul III; Mai Mult Verde; Coalitia pentru Mediu etc.	<input type="checkbox"/> YES <input type="checkbox"/> NO
16	Forest enterprises (domestic or foreign; state or private) and companies for service provision (e.g Frasinul, Holzindustrie)	<input type="checkbox"/> YES <input type="checkbox"/> NO
17	General state administration (city hall, ministry of finance, etc.) on different levels, politicians (e.g. major, etc.)	<input type="checkbox"/> YES <input type="checkbox"/> NO
18	Local hunters	<input type="checkbox"/> YES <input type="checkbox"/> NO
19	Forest-related labour unions ( Federatia sindicatelor Silva; Confederatia Consilva; Federatia pentru Apararea padurilor "FAP"; Consiliul silvicultorilor europeni "CEF" etc.	<input type="checkbox"/> YES <input type="checkbox"/> NO
20	Fishing magazines ( Revista National Geographic; Revista ferma etc.)	<input type="checkbox"/> YES <input type="checkbox"/> NO
21	Schools	<input type="checkbox"/> YES <input type="checkbox"/> NO
22	State institutions or their parts (agencies, ministry departments) that are responsible for environment and/or nature protection ( National park administration)	<input type="checkbox"/> YES <input type="checkbox"/> NO
23	Forest faculties ( UNITBV Brasov; Stefan cel Mare, Suceava etc.) cat si Institutii de cercetare in Silvicultura	<input type="checkbox"/> YES <input type="checkbox"/> NO
24	Local sports club or sports association	<input type="checkbox"/> YES <input type="checkbox"/> NO
25	Regional wood buyers or traders	<input type="checkbox"/> YES <input type="checkbox"/> NO
26	National protection/environnement research institutes ( INCDS ; SSM cat si Facultatile din domeniul silvic; ICPA etc.)	<input type="checkbox"/> YES <input type="checkbox"/> NO

27	Research institutions conducting research on wood properties, wood processing, wood industry (RNP; Ministerul Mediului; Ministerul apelor si padurilor; Ministerul Transporturilor etc.)	<input type="checkbox"/> YES <input type="checkbox"/> NO
28	Tourist magazines	<input type="checkbox"/> YES <input type="checkbox"/> NO
29	Publications or magazines regarding nature protection/environment ( Revista padurilor; Ecologic; Revista presei; Progresul silvic etc. )	<input type="checkbox"/> YES <input type="checkbox"/> NO
30	Research institute in the game management ( INCDS, Facultatile de specialitate etc.)	<input type="checkbox"/> YES <input type="checkbox"/> NO
31	Forest owners association ( ASFOR; Asociatia administratorilor de paduri etc )	<input type="checkbox"/> YES <input type="checkbox"/> NO
32	Magazines for wood industry and construction( Fordaq; Revista din lemn, Mobila; Intarzia etc. )	<input type="checkbox"/> YES <input type="checkbox"/> NO
33	Research institutions conducting research on wood properties, wood processing, wood industry ( INCDS; INL; Facultatile de silvicultura etc. )	<input type="checkbox"/> YES <input type="checkbox"/> NO
34	Research institutions conducting research on wood properties, wood processing, wood industry and construction( Departamentul Comercial din cadrul RNP ROMSILVA; INL; INCDS; INC D URBAN INCERC etc. )	<input type="checkbox"/> YES <input type="checkbox"/> NO
35	State institutions, or their parts (departments, agencies, etc.), in charge of agriculture ( INCDA Fundulea; ICDPP; INCDS; ICPA etc. )	<input type="checkbox"/> YES <input type="checkbox"/> NO
36	Police/law enforcement	<input type="checkbox"/> YES <input type="checkbox"/> NO
37	Regional or national game management association ( AJVPS; AGVPS; Pro Hunting etc.)	<input type="checkbox"/> YES <input type="checkbox"/> NO
38	Fishing associations (AGVPS; Delta fishing etc.)	<input type="checkbox"/> YES <input type="checkbox"/> NO
39	State institutions or their parts, e.g. ministry department, that are responsible for fishing ( AGVPS; RNP, INCDS)	<input type="checkbox"/> YES <input type="checkbox"/> NO
40	Citizen initiatives concerned with environmental and/or nature protection issues	<input type="checkbox"/> YES <input type="checkbox"/> NO
41	Forest visitors, individual sportsmen	<input type="checkbox"/> YES <input type="checkbox"/> NO
42	Wood-industry associations / associations of wood-processors ( AGIR; FORDAQ etc.)	<input type="checkbox"/> YES <input type="checkbox"/> NO
43	Research institutions concerned with tourism, sports, recreation	<input type="checkbox"/> YES <input type="checkbox"/> NO
44	Agricultural and farmer associations ( AISR; UNCSV; UNCAPI; ACV.BR-SIM; LAPAR etc. )	<input type="checkbox"/> YES <input type="checkbox"/> NO
45	Scientific institutions conducting research about fishing	<input type="checkbox"/> YES <input type="checkbox"/> NO
46	Local, regional or nation-wide media	<input type="checkbox"/> YES <input type="checkbox"/> NO
47	Other associations: _____	
48	Research institutions conducting: _____ research	
49	Other : _____	

2. Select five numbers from the above tabel that are most relevant partners of your institution

\_\_\_\_\_

3. Select five numbers from the above list as partners that your institution would prefer to cooperate with, when conflicts are overcome: \_\_\_\_\_

\_\_\_\_\_

4. Does your institution want to become (or to remain) the representative of the forest sector in your country, i.e. to push sector's interests about sustainable wood yield and wood production in the first



place, by representing it in public debates, reports, in opinions for the parliament or politics, in different councils, media, and all other occasions? \_\_\_\_\_ (YES/NO)

5. Does your institution intend to balance all interests regarding forest protection and use (e.g. interests of the forest sector for wood production, interests of nature and environment for protection, tourism organisations, wood industry, hikers, bikers, etc.) by relying on their demands?

\_\_\_\_\_ (YES/NO)

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